

Supporting Fathering Through Infant Massage

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ABSTRACT

Developing a strong relationship is essential for optimal child development and it is possible for fathers to fully participate in developing this close bond. Men often develop this relationship through interactive play which usually occurs later in their child's development. As a result, fathers often feel dissatisfied with their ability to form a close attachment in the early post-partum period, which in turn may increase their stress level. However, men can be prepared for the transition to fatherhood if they develop the knowledge and skill necessary to create positive relationships with their infants. Infant massage appears to be a viable option for teaching fathers care-giving sensitivity. To build on the notion of teaching fathers attachment system behaviour in early infancy, a quasi-experimental, mixed methods study was employed. Twenty-four infant-father dyads were recruited for the study. The fathers were asked to fill out the Parent Stress Index and a facial cues rating scale at two times, one month apart. The experimental group also participated in an infant massage intervention taught by a Certified Infant Massage Instructor of the International Association of Infant Massage. A repeated measures MANOVA revealed infant massage decreased paternal stress. Qualitatively, the fathers provided rich descriptions of their experience in the baby massage class which provided useful insight into the efficacy of the intervention. Overall, the fathers enjoyed the experience but did not necessarily see the direct benefit of the intervention on their relationship. Recommendations for pre and postnatal education for fathers are made.

Chapter one

INTRODUCTION

Traditionally, fathers' efforts in child rearing have often been both overlooked and understudied (Anderson, 1996a; Caldera, 2004; Paquette, 2004; Rustica & Abbott, 2004). Generally when fathers are involved in their children's lives, children exhibit less behavioural and psychological problems and show higher levels of educational success (Lamb, 1981). In addition, children often experience decreased levels of criminal activity and less economic hardship (Sarkadi, Kristiansson, Oberklaid & Bremberg, 2008). Despite this encouraging evidence, there remains a central problem in understanding father involvement; lack of defining characteristics.

The current literature on predictive factors of father involvement is varied and inconclusive. There are about six major categories of predictors including: demographic protective factors, father's own childhood relationship with his father, partner support, father's acceptance of new role, infant characteristics and societal values. The first sets of factors to be discussed are demographic such as co-habitation with the infant and the infant's mother. In father present homes, infants generally show higher levels of cognitive ability (Heterington, Camara & Heatherman, 1993) and adolescents are less likely to drop out of high school (McLanahan, 1985). Co-habitation generally implies an environment of greater economic stability and thus higher child educational attainment (Shannon, et al., 2005).

The second set of factors is a father's perceived acceptance or rejection from his own father during his childhood (Shannon, et al., 2005). Contrary to expectations, some

evidence exists to suggest fathers who have negative recollections of their own fathers seem to have securely attached infants (Volling & Belsky, 1992). Shannon et al (2005) describe this as compensation for their own inadequate upbringing. However, other evidence suggests the opposite; men who have secure attachment histories tend to be more warm, nurturing and sensitive with their infants than fathers who had negative attachment histories (Cowan, Cohn, Cowan & Pearson, 1996). Regardless of this conflicting evidence, men often express the desire to be more emotionally involved with their infants than their fathers were with them (Anderson, 1996b).

The third category of determinants is the father's relationship with the infant's mother. The more supported the father feels, the more responsive he is to his own infant (Shannon, et. al., 2005). Men often view their partners as providers of information and encouragement for infant-father involvement (Anderson, 1996a). Although men want to be more emotionally involved and less traditional with their infants, they often do not know how to establish this relationship (Anderson, 1996). Rustica and Abbott (1993) concur and also state that the baby's mother's expectations of the father and her employment status can also influence the amount and type of father participation. For example if a mother is employed shortly after birth, the father may need to do more infant care than if the mother was home full-time (Jacobs & Kelly, 2006).

The transition to fatherhood is the fourth predictor of father involvement discussed in the literature. This includes the father's attitudes and willingness to have changes occur in their work, personal, social and marital lives. In Anderson's (1996a) study, the men not only described physical and psychological changes, but also the need to reawaken their nurturing side. Jacobs and Kelly (2006) note fathers' motivation to

become a parent may be more important for involvement than spousal beliefs on father involvement. Although the transition to parenthood is considered a normal developmental milestone, fathers in particular are often unprepared for this change (McBride, 1989). This can lead to stress which can negatively impact the marital relationship and the father's level of involvement with his infant (McBride, 1989).

The fifth predictor of father involvement includes infant characteristics such as sex, health and temperament of the child (Rustica & Abbott, 1993). For example, there is some evidence to suggest that fathers are more involved with male infants and generally perform more care giving behaviours when infants are born with health problems (Rustica & Abbott, 1993). In addition, Siriganano and Lachman (1985) note fathers with babies who have "difficult" temperaments often feel less confident about their ability to parent than fathers who have "easy" babies.

The sixth and final predictor discussed is external influences such as the way society values fatherhood. LaRossa (1988) describes a "crisis of fatherhood" where the conduct of fatherhood (what fathers do) has not caught up to societal ideals (i.e.: nurturing, involved fathers). Many fathers feel caught between the need to be involved in a nurturing capacity and the still prevalent expectation to provide for and support the family economically (Rustica & Abbott, 1993). Societal values are also reflected by institutions such as workplace and governmental policies around parental leave. Generally the more hours a father works outside the home in single-earner homes, the less involved he is in infant care (Jacobs & Kelly, 2006). Despite a lack of defining characteristics, there appears to be many factors that influence father involvement.

Regardless, of why or how men are involved, men are expressing the desire to be more involved with their children than their fathers were with them (Anderson, 1996b).

Father's want to be more emotionally bonded with their babies; however they often feel dissatisfied with their ability to form this meaningful relationship (Anderson, 1996b). Anderson (1996b) suggests that mothers naturally develop close relationships through activities such as breastfeeding. Salmon and Schackelford (2007) describe this as women being equipped with more special purpose mechanisms; anatomical, physiological and psychological, which can be exemplified by pregnancy and breastfeeding. Fathers often worry they may be biologically disadvantaged or incapable of developing this special relationship (Anderson, 1996b). Although men generally do not have the same anatomical or physiological mechanisms, they are equally capable of developing this relationship (Parke & Sawin, 1976). Fathers need to know that the relationship may take more time to develop and may be achieved differently. One proposed suggestion is using the power of touch to help foster infant-father relationships.

Chapter Two

LITERATURE REVIEW

Touch is our most primal sense and is associated with the largest organ in the human body: our skin. Humans are sensory beings. Of all the senses to develop, touch is the first and begins before the baby is born (Field, 2001). In the first few months of life, touch is utilized more often than hearing, vision or smell as a way to learn about the physical world and to develop close meaningful relationships (Field, 2001). Research with mothers has shown touch conveys social messages and helps infants develop a sense of self identity (Moszkowski & Stack, 2007). Touch is a powerful communicator as it often mirrors our own feelings towards another individual. Ultimately infants are able to sense how their parents feel about them by the manner in which they are touched (Field, 2001).

One of the most striking and seminal experiments depicting the importance of touch was conducted by Harry Harlow during the 1950's with Rhesus monkeys. The monkeys were raised in isolation from their mothers and were placed in a cage with surrogate wire dummies. One dummy was covered in cloth and did not provide food. The other provided food but was left as exposed wire. The monkey's preferred the comforting surrogate that provided warmth from a terry cloth towel, suggesting that touch and comfort is more preferential biologically than nourishment (Harlow, 1959). In a similar study, Harlow found that monkeys raised in a touch deprived environment like the surrogate wire mother experiment were much more socially awkward and often unable to reproduce later as adults (Harlow & Harlow, 1966).

Rodents are another animal commonly used in research to study the effects of differences in parental care on development. Differences in parental care, such as tactile stimulation can mediate the effects of poverty or stressful events on intellectual and emotional development (Fish et al., 2004). This type of evocative gene theory is often referred to as epigenetic programming (Fish et al., 2004). Differences in parental care (programming) to be discussed here are generally divided into two categories, low grooming/licking of pups and arched-back nursing (Low LG-ABN) or high grooming/licking of pups and arched-back nursing (High LG-ABN) (Fish et al., 2004). The authors note that both high and low LG-ABN behaviours are normative variations in maternal care and should not be viewed as “good” or “bad” parenting. They also note, both groups do not differ in amount of contact time, but rather the “quality” of contact is what differs. Generally, maternal licking/grooming has been found to stimulate the release of growth hormones and decreases adrenal glucocorticoids in offspring (Fish et al., 2004).

Specifically rats with high LG-ABN mothers show greater hippocampal gene expression including cellular metabolic activity, glutamate receptor function and growth factor genes including brain-derived functions (Diorio, Weaver & Meaney, 2000). Rats of high LG-ABN mothers grow up to show greater special learning capacity (Liu et al., 2000) higher object recognition, (Bredy, Humpartzoomain, Cain & Meaney, 2000) decreased stress hormone response to acute stress, decreased startle response and more open field exploration (Francis & Meaney, 1999). In addition to the numerous benefits of high LG-ABN, maternal behaviour is evidence that when as these offspring reach

adulthood and reproduce themselves, their offspring also experience decreased reactivity to stress (Caldji, Diorio & Meaney, 2003).

Animal research has greatly informed the study of touch, as seen in the two aforementioned examples, rhesus monkeys and rats. Ethically, documented history may be the most appropriate way to comprehend the effects of touch deprivation on human infants. When humans are deprived of comforting touch, they are often at risk for a myriad of developmental issues such as small body stature, altered brain function and the reproduction of stereotypic movements such as rocking or arm flapping (Carlson, & Earls, 1997). In situations where infants are separated from their parents such as war or famine, the detrimental effects of touch deprivation are evident. Blackwell (2000) states, at the beginning of the twentieth century, in war-torn Germany, infant mortality in residential care was as high as 71.5%. The reported cause of death was called “hospitalism”, which is described as a lack of stimulation by an adult caregiver rather than death by poor nutrition or insufficient medical care.

More recently, approximately two percent of all infants born in Romania were surrendered to orphanages. Strict government rule on reproduction has often been cited as the cause of this epidemic (Blackwell, 2000). Children raised in these orphanages displayed many of the behaviours typical of “hospitalism”. Due to the high number of children in these orphanages, adult-child interaction was extremely low. Thus a touch deprived situation was unintentionally created by overcrowding in the orphanage. Field (2002) suggests that many of these children reached only half of their expected height in terms of developmental standards. There is a relationship between age of touch deprivation and child outcomes. Generally, when touch deprivation occurs early in a

child's life the effects are more devastating. In addition, duration of touch deprivation is another predictive factor for child outcomes. When touch deprivation occurs over the span of many years the effects are often more detrimental and longer lasting (Blackwell, 2000).

The practice of touch and touch therapies are as varied as there are cultures in the world. Every culture has different reasons, types, and frequency in their touch practices (Field, 2001). These differences can be found in all aspects of infant care from the birth process to breastfeeding, to co-bedding and carrying. For example, in Western cultures where independence is highly valued, touch practices between parent and infant reflect a similar pattern; infants generally sleep alone and are weaned off breastfeeding early for fear of dependency on adults (Blackwell, 2000). Mainous (2002) suggests that various touch practices may be less prevalent in Western culture due to discomfort with the human body and associations with touch and sexual pleasure.

Anthropologists who have studied cultures such as the people of Gusii in Kenya indicate that more direct physical interaction with infants' provides protective factors for infant survival. For example, despite health and economic hardship Gusii infants flourish, most likely due to the almost constant physical contact with their mothers (LeVine, 1994). In addition, children raised in cultures where a high level of physical contact is normative are found to be less aggressive than those raised by Western standards. Field (2002) provides an example of this; in a comparison of preschoolers raised in America and France, where physical touch is more prevalent in French culture, American preschoolers were more aggressive with their peers than their French counterparts.

Interestingly, in cultures where there is more physical aggression with one another even in adults, physical touch is often not as valued (Field, 2002).

Franco, Fogel, Messinger and Frazier (1996) conducted a study on cultural differences between Hispanic and Anglo mother-infant dyads living in the United States. This study is a reminder that despite living in the same country, there is often a wide variation of touch norms within different cultures of people. Hispanic mothers were found to be more often in close physical contact with their infants than Anglo mothers. Although there was no difference in the frequency of touch, there was variation in the purpose of touch and what the interaction was trying to achieve. The results of this study seem to be consistent with cultural norms regarding touch and values about individualism and independence (Franco, et al., 1996).

As discussed, touch is one possible approach in which fathers can develop an important connection with their babies. Infant massage, a touch modality, is the selected focus of this inquiry. It is a century's old touch therapy that has resurfaced in Western culture as a means to bond with a baby (Field, 2002). The International Association of Infant massage (IAIM) describes infant massage as a care-giving curriculum that emphasizes both stroking of the skin and learning infant communication styles, behavioural cues and "typical" growth and development (Simpson, 2001). The next section will present a review of the current literature on infant massage as it relates to clinical populations, well-babies and fathers. An analysis of attachment, parental stress and paternal perceived infant facial cues will round out the discussion on how infant massage may influence paternal stress levels and evolutionary cues to connectedness; which may ultimately influence/enhance fathers level of involvement.

Infant massage in clinical populations

Touch therapy and touch research is a relatively new area of research; however it has been around for centuries and can be dated back to at least 1800 B.C. (Field, 1995). Touch therapy can alter all domains of development including cognitive, social, emotional and physical maturation (Field, 2001). In naturally occurring, touch-deprived situations such as the Romanian orphanages mentioned earlier and in Intensive Care Units, infant massage has been employed to mediate the potentially negative consequences associated with touch-deprived environments. As reported in Field's (2001) text "Touch", children in the Romanian orphanages benefited greatly from massage intervention research. Prior to the intervention, the children were half the expected height for their age and appeared skeleton-like. Massage reportedly helped the children gain weight and become more comfortable with human interaction.

In other research on a similar population of children, Jump, Fargo and Akers (2006) studied infant massage and health outcomes for infants in Ecuadorian orphanages. Diarrhea is common place in orphanages in developing countries and is the second leading cause of death in children under five years of age (World Health Organization, 2004). The purpose of Jump et al's., (2006) study was to determine if daily massage decreased the prevalence of diarrhea and thus improved overall health for infants living in these Ecuadorian orphanages.

Infants were recruited from two orphanages in Ecuador and randomly assigned to a control group which did not receive any massage or an experimental group which received 15 minutes of daily massage. Infant massage was used as a strategy to improve

immune function and increase weight gain to prevent the negative health consequences of “hospitalism”. Infants in the experimental group had fewer days of illness than infants in the control group suggesting infant massage may be a cost-effective intervention for health issues such as diarrhea with the added benefit of generating more secure attachments with caregivers (Jump et al., 2006).

Another area of infant massage research and naturally occurring touch deprived situations comes from the Neonatal Intensive Care Unit (NICU). Typically when an infant is born premature or low birth weight, the infant requires a period of incubation (Field, 2002). Incubator design and strict guidelines around handling and visitation in the NICU significantly reduce the amount and type of touch interactions between infant and parent in the first few days of life. Touch research in the past two decades has focused on this specialized population and has significantly contributed to our understanding of the relationship between touch therapy and infant health outcomes.

The Touch Research Institute conducted a controlled experiment where the treatment group received infant massage for five days in the NICU. The control group received regular care. Dieter, Field, Hernandez-Reif, Emory and Redzepi, (2003) found that infants in the experimental group had a 53% greater average weight gain than the control group. They suggest infant massage is a cost-effective way to reduce hospital stays and improve the negative consequences hospitalization can have on development.

In a similar study, Ferber et al., (2002) investigated the health outcomes of infant massage as administered by a massage professional versus a trained mother. Participants were randomly assigned to one of three groups; the control group, professional massage group, or trained mothers group. Consistent with previous research, the infants in both

massage groups gained weight more rapidly than the control group infants. As for who delivered the massage, the results were statically not significant. This suggests that when parents are trained in infant massage they can be as effective as a massage professional (Ferber et al., 2002).

Along with the positive benefits of infant massage on weight gain for preterm infants are social and emotional benefits for both the mother and the infant (Lappin, 2005). Due to necessary separation and isolation of preterm infants in the NICU, the infant-parent relationship can be negatively altered. She claims “mothers of these children often misread infant cues and touch, talk to, and gaze at their infants less than mothers of typically developing full-term infants” (Lappin, 2005, pg. 87). Considering the importance of the first few hours and days of life in developing a mutually satisfying relationship between mother and infant, hospitals should provide opportunities for touch and bonding.

Similarly, Ferber et al., (2005) wanted to understand the social and emotional benefits of massage on mother-infant interaction in premature infants. Fifty-one infant-mother dyads from three Israeli NICU's were recruited for the study. Mothers in this situation often over stimulate their infants or can be too intrusive. After the experimental conditions were administered the dyads were followed at home three months post-hospitalization. Ferber et al., (2005) found that mothers who massaged their infants in the NICU were generally more competent in care-giving and had more positive interactions than control group mothers. Finally, infants in the experimental group were more sociable than their control counterparts.

Field and colleagues have extended these findings from pre-term infants to other high-risk neonate populations. For example they have found similar benefits for cocaine-exposed infants (Scafidi, et al., 1996) and HIV exposed infants (Scafidi & Field, 1997). They also found teaching infant massage to depressed and anxious mothers following NICU care was beneficial to both members of the dyad (Field, Grizzle, Scafidi, Abrams & Richardson, 1996). It is clear touch therapy instruction in the NICU and in other touch deprived environments provides ample benefit to both infant and caregiver (Field et al., 1996).

Ethological evidence such as Harlow's experiments with Rhesus monkeys and what we have observed through human history, across cultures and in the NICU suggest that touch and physical contact may be one of the most relevant factors in cultivating positive infant-caregiver relationships. Why does the ability to form this infant-caregiver relationship matter? The primary bonds that are formed in infancy act as an internal working model from which the child will base all future relationships. The synchrony of this relationship is often termed attachment.

Attachment

Attachment theory traditionally is defined as the close relationship between a mother and her infant that powerfully predicts later socio-emotional and personality development (Thompson, 2000). The three classic types of attachment relationships are often categorized as avoidant, secure and ambivalent (Bowlby, 1969). Avoidant attachment is usually characterized by unresponsiveness by the infant who does not react when their parent leaves the room and is usually slow to warm up when the parent returns (Thompson, 2000). Secure attachments are usually characterized by stranger anxiety that

may or may not include crying. The child actively seeks the parent on their return and their crying is reduced immediately (Thompson, 2000). An ambivalent or disorganized attachment is characterized by the child's contradictory behaviours on their parents' absence and return (Thompson, 2000). This attachment pattern depicts the greatest insecurity. In general, a secure infant attachment can lead to qualities such as increased social competency, increased intellectual curiosity, persistence in problem solving and more symbolic play (Lundy, 2002). Secure attachments provide a child with a sense of worth that will help them build a template for future relationships (Grossmann, et al., 2002).

Consider again Harlow's work with Rhesus monkeys. He conducted an experiment using fear producing stimuli to understand which surrogate mother the monkeys would prefer in a time of perceived danger. The monkeys sought comfort in the terry cloth surrogate by exhibiting touch behaviors such as clutching the mother and rubbing their bodies against the towel (Harlow, 1958). Harlow also found that in a strange situation procedure, the monkey's used the cloth surrogate mother as a secure base from which they would explore their environment. During exploration, the monkeys often came back to the cloth mother, comforted themselves by rubbing or clutching the surrogate, and again returned to exploring their surroundings (Harlow, 1958). Bowlby (1969) would describe this as the ability to use the secure base from which to develop the skill of exploration.

In similar research, researchers have used the still face procedure to elicit distressful stimuli with human infants (Moszkowski & Stack, 2007). In perceived distress infants are more likely to use active touch such as patting or pulling behaviour which

may indicate the need to regulate self arousal. In normal interactions, infants are more likely to use passive touch behaviour as they may be content with their mother's level of stimulation (Moszkowski & Stack, 2007). In addition, when infants are distressed they are more likely to touch themselves whereas they will touch objects outside of their bodies when they are at ease. Again this describes what Bowlby (1969) would explain as the ability to use the mother (the secure base) from which to explore the outside world, which is necessary for development.

Despite Harlow and Bowlby's seminal work, most traditional measures of attachment security have focused on measuring the infant's ability to form a secure base. Research has perhaps created a bias in attachment research by only measuring the variable that relates to mother's inherent care-giving sensitivity (Grossman et al., 2002). The exploration variable may show higher levels of father-infant attachment if measured in isolation from the ability to form a secure base. Fathers naturally show a greater sensitivity in play which may translate to the infants' confidence and risk taking behaviour that is necessary for exploration. Both variables are important in an infant's ability to form meaningful relationships later in life (Grossmann et al., 2002).

Paquette (2004) describes these two variables as different systems that inform attachment. The first is the attachment system that regulates stress through contact and comfort (more typically inherent in the mother-infant relationship) (Grossmann et al., 2002). The second is the activation system that regulates arousal through stimulation and physical play (more typically inherent in the father-child relationship) (Grossman et al., 2002). Paquette puts forth the idea that by combining both systems we come up with a third model that allows for an integration of the two systems (Roggmann, 2004). By

integrating the two systems, we don't have to consider parental roles as mutually exclusive relationships. We can look at mothers and fathers providing input to both systems which accurately reflects what researchers are naturally seeing in modern families (Roggmann, 2004). Paquette's new third model stresses the idea that behaviours typically characterized as maternal are not the only important variables in parent-child attachment.

Looking at attachment from Paquette's third model perspective provides necessary insight into the natural blending of maternal and paternal roles. In addition, it gives fathers more credit for the behaviours that they inherently contribute to child development. In addition to looking at attachment with a new lens, it is important to translate this information to intervention work with both mothers and fathers. Using this new framework, attachment interventions with mothers should focus on play and activation system behaviour. Interventions with fathers should focus on care giving and sensitive attachment behaviour. Infant massage instruction may be an ideal "intervention" to assist fathers in developing more sensitive care giving and attachment system behaviour.

Infant massage with "well-babies"

With noted benefits of infant massage in clinical populations, Field and Hernandez-Reif (2001) extended their efforts to include "well-babies" and sleep problems. Twenty three infants or toddlers who had sleep onset difficulties were recruited for their study. The children were randomized to either the control group (story at bedtime) or experimental group (massage at bedtime). Self-reports and observations were utilized to measure efficacy of the treatment. Treatment effects were found in both

groups, however in the massage group the parents reported less sleep problems in their infants. They also reported their baby spent more time in the awake, alert and active phase which is helpful for positive infant-parent interaction (Field & Hernandez-Reif, 2001).

Lorenz, Moyse and Surguy (2005) provide a review of some of the important studies on the benefits of infant massage. Benefits to both the infant and the parent were considered. In terms of physical health, infants who are massaged have fewer sleep problems in both quality and quantity of sleep (Field, 1995). One study reviewed showed how massage on the lower limbs improved cognitive development (Cigales, et al., 1997). In addition, symptoms of “colic” are often reduced for massaged infants including discomfort in bowel movements and excessive crying. The authors point out that “colic” seems to be a North American phenomenon and wonder if routine infant massage practice in some cultures is preventative of this type of infant distress (Heller, 1997). In terms of psychological benefits, most come from the reciprocal relationship formed between the massaged infant and the parent (Lorenz et al., 2005).

Lorenz and colleagues (2005) also acknowledge the benefits of infant massage for parents. Mothers who massage their babies describe higher feelings of pleasure when playing with their infants’ than mothers who do not use massage. The benefits for fathers who participated included exhibiting more warmth towards their infants’ and improved reports of bonding. Parents reported they appreciate infant massage instruction and see it as a tool for positive parenting. Generally, following massage instruction parents appear more sensitive and aware of their infant’s cues. The authors explain that massage provides a “special medium for relaxed communication” (Lorenz et al., 2005, pg. 16).

When parents are able to understand their infant's needs they are able to respond in a more appropriate way, thus supporting synchrony and reciprocity in their developing relationship (Lorenz et al., 2005). As mentioned previously, this may be even more significant for fathers as they often exhibit less care-giving behaviour necessary for early attachment (Paquette, 2004).

Infant Massage of Well-babies by Fathers

Father involvement in infant massage class is a rarity. To further complicate matters, current touch literature presents a scarce image of fathers engaged in infant massage (Mackereth, 2003). Although the literature suggests infant massage may be beneficial for the father-infant relationship, there is little empirical evidence of the father's perspective on the experience. A single case study revealed a stronger relationship between the father and his baby post infant massage intervention. The father was "pleased that as a father he was able to contribute, through massage, something that clearly not only had physical benefits for his daughter, but also helped with bonding" (Mackereth, 2003, pg. 152).

In many families, mothers are in charge of "care and comfort" which may be at the core of the touch stigma for fathers. Mackereth (2003) suggests some logistical and practical solutions to help overcome this stigma. First, infant massage should be taught in a class setting to encourage "normalization" of the father experience. Classes need to be held at various times during the week and on weekends to accommodate working families. On a broader level, there needs to be more images of fathers in the current literature to help depict this shift. Specifically, evidence based research with fathers is

needed on the universal and unique benefits of infant massage for them and their infants (Mackereth, 2003).

Observing patterns of father presence in the birth process has informed and highlighted the unique role fathers can play in infant development. For example, increased father presence at birth has resulted in an increased period of involvement for fathers in the post-partum period (Scholz & Samuels, 1992). This trend may also develop if fathers are exposed to instruction on caretaking activities that focus on routines and relationship quality with their infant.

To further understand this experience Scholz and Samuels (1992) recruited thirty two families from Australia. At four weeks postpartum, the treatment group was taught the Burleigh Relaxation Bath for infants. The Burleigh Relaxation Bath consists of 5-15 minutes of submerged bath time followed by a traditional infant massage. The control group was not taught any techniques, but rather talked about the baby and infant development in general. All families in the study were asked to keep a time diary of who preformed care giving activities and for how long. All families were observed at 12 weeks for one minute at the moment the father arrived home and again for 10 minutes once everyone was settled.

Fathers in the treatment group showed more preferential behaviours with their infants than the control group fathers. Infants in the treatment group greeted their fathers more positively, which may enhance infant-father attachment. The time diaries showed little difference in the amount and type of care giving activities fathers in either group engaged in. Quality of time appeared to be more important for positive relationships than quantity of time. Fathers in the treatment group perhaps became more open to the types

of interactions they could have with their infants and appeared to thrive on the emotional and motivational or attitudinal benefits of the increased opportunity to touch their infants. Although the authors caution against drawing inferences from their study, they support the idea that skill-based intervention with new fathers can greatly impact the quality of the infant-father relationship (Scholz & Samuels, 1992).

Cullen, Field, Escalona and Hartshorn's (2000) study of father-infant interactions is perhaps one of the most significant research studies related to this thesis. The primary purpose of their study was to determine if teaching fathers infant massage translated to improved positive interaction and more time in care giving activities. The study was designed to correct the potential confounding variables in the Scholz and Samuels' (1992) study mentioned above, related to the combining of variables. Fathers were the only participants and one type of intervention was utilized: infant massage alone rather than the combined infant-massage, bath technique. Fathers in the treatment group were taught massage and asked to do the routine for fifteen minutes everyday before bedtime for the duration of one month. The control group was used as a waitlist for treatment, where they were asked to continue their normal bedtime routine for the same one month period.

Cullen et al., (2000) used a child care scale to measure care giving activities. The nightly bedtime diary was used to assess the efficacy of the infant massage intervention. Researchers observed and coded infant-father interactions during floor play, pre and post intervention to measure changes in the relationship. They found that fathers who massaged their infants were more expressive, warm and accepting in their interactions with their infants. Similar to Scholz and Samuels' (1992) study the authors concluded

“...these data tentatively suggest the easily learned massage technique is an effective way for fathers to develop more positive interactions with their infants” (Cullen et al., 2000, pg. 46).

Parental Stress

Considering the benefits of infant massage for fathers of well-babies, measuring perceived parental stress is an area of research that has not yet been carried out. The transition to parenthood is a developmental milestone that many men and women undertake in their lifespan. Although this transition is considered normal, it is also regarded as stressful (Willinger, et al., 2005). This transition is often characterized by a change in self and relationship perceptions. Research has found that most couples experience some decline in their marital satisfaction with the new parenting role (Johns & Belsky, 2007). This transition may be even more stressful for fathers as they often do not have the same physical, emotional and social resources women have to cope with the new role (Johns & Belsky, 2007).

Stress can lead to dysfunctional parenting (Abidin, 1992). Parents who feel stressed by their parental role may react to their infant's behaviour, characteristics and cues in an unfavorable way which may negatively affect attachment (Jarvis & Creasey, 1991). Most research in this area has been done on parents who have children with special needs, were born prematurely or in other “crisis” situations. Much less has been done with parents in low-risk populations, even though we know parenting on its own can be very stressful (Jarvis & Creasey, 1991). Stress is perception based and often created through the assessment of our own internal working model of the self-as a parent

(Abidin, 1992). Stress can be produced when parents evaluate their own personal attachment history, life goals and goals others have for them (Abidin, 1992).

Considering parenting as a reciprocal process, there are three sets of stressors that can put strain on the relationship (Abidin, 1995). The first set of factors are child characteristics such as demandingness and mood which can make a parent's task more difficult depending on factors the child brings to the relationship. The second set of factors is parental characteristics such as perception of their own health, quality of their relationship with a partner or spouse and the type and amount of restriction they feel their parenting role places on their lifestyle. The third set of factors that can cause stress in the system is outside variables including death of a family member and job loss for example. These three sets of stressors are measured by the parent stress index (PSI) (Abidin, 1995).

Willinger and associates (2005) utilized the PSI and a parental bonding instrument to examine the relationship between parent stress and child attachment. They found that in optimal bonding, parents had low amounts of stress, high levels of care giving and low levels of controlling behaviour. In affectionate constraint bonds, parents showed high levels of care and high levels of control. In affectionless control bonds, parents had low levels of care and high levels of control. Finally in absent or weak bonds, parents showed low levels of care and low levels of control (Willinger et al., 2005).

Abidin's (1992) research supports the notion that stress and attachment are not a linear relationship. In most cases, high levels of stress leads to low levels of attachment, however in cases of very low stress, the parent may be disengaged in the process which may also negatively impact their attachment quality. The latter situation would probably look similar to the absent or weak bond as described above by Willinger et al., (2005).

When broken down into the three domains of stressors, child, parent and life stressors, child and parent characteristics yielded statistically significant results. Life stressors did not appear to affect attachment quality or behaviour (Willinger et al, 2005). Although it is generally accepted that higher levels of perceived stress will yield less secure attachments, Jarvis and Creasey (1991) found that coping style acted as a mediator to attachment.

Fathers in particular may feel more of this perceived stress than mothers as they often feel unprepared to assume a parenting role (McBride, 1989). Generally, fathers show less knowledge in the areas of normal child development, parenting skills and sensitivity to infants' needs. McBride (1989) suggests this may be due to a lack of a paternal role model in their own life, few social opportunities and a lack of institutional support. As fathers are experiencing a greater desire and social shift in their involvement in infant care, they may be experiencing even greater stress in the transition to parenthood. McBride (1989) utilized the PSI and a measure of competence to test the hypothesis that paternal involvement is related to perceived competence as a parent. He found that father depression in the parenting subscale of the PSI and child demandingness in the child subscale is the best predictor of parenting competence. In addition, decreased perceived stress increased perceived parental competence. Infant massage may be the link between increased paternal competence (perceived or actual), lower levels of stress and greater father involvement.

Paternal perception of infant facial cues

Another area of research that may benefit from a brief infant massage intervention is paternal perceptions of infant facial cues. From an evolutionary perspective, father

involvement contributes to the reproductive fitness of offspring through the transfer of knowledge, an increase in resources and improved social competence (Hrdy, 2007; Geary, 2007). However, not all fathers remain involved in their infants' lives. Fathers use infant facial cues to provide them with information on resemblance, health, happiness and cuteness that may assist them in their decision to care for a particular child (Volk & Quinsy, 2002). Triver's describes this as a "cost-benefit analysis" and suggests men engage in this process more often than women do due to paternal uncertainty. Primate ovulation is concealed, thus males can never be one hundred percent sure of paternity (Salmon & Shackelford, 2007). Regardless of covert ovulation, human beings are in the five percent of all primates that engage in fatherhood.

Fathers have had to adapt to this uncertainty to avoid possible cuckoldry (raising another man's child) and lost reproductive opportunities (Geary, 2007). In a cost-benefit analysis, resemblance seems to be the cue of greatest importance to fathers as it provides the most salient link to paternal certainty (Volk & Quinsy, 2002). Men are less interested in investing in infants who they are not genetically related (Volk & Quinsy, 2007). Interestingly, women are more likely to tell a man the baby looks like him than herself. This potential manipulation can be seen as an evolutionary adaptation to increase father involvement (Daly & Wilson, 1982).

Happiness, health and cuteness are the other infant facial cues thought to be important for fathers' cost-benefit analysis (Volk & Quinsy, 2002). Grounded in evolutionary theory, happiness, health and cuteness are thought to represent how fit the infant is. For example, consistently unhappy infant facial cues may indicate autism or illness (Davison & Neale, 1994). Infant health is generally evaluated by skin tone and

weight in the face (Volk & Quinsy, 2002). If an infant appears unhealthy, we may assume the investment of time, effort and resources necessary to help them overcome this adversity may not pay off due to possible mortality. Cute facial cues are assessed by attractiveness, age and symmetry. Cuteness cues may have short term and long term effects such as perceived competence, interaction time, preferential treatment, and the perception of good genes. Infants who are rated highly on cuteness, health and happiness often receive more attention and affection, which would in turn improve parental investment and thus ensure infant survival (Volk & Quinsey, 2002).

In all three studies by Volk, Quinsey and Lukjanczuk, 2002, 2005 and 2007 the research has been based on hypothetical adoption as a measurement of parental investment. In the current study this tool was utilized to distinguish if the results would be replicated with actual fathers. If these results are replicated, it can be assumed that actual father involvement is high when men favourably rate their infants in terms of happiness, cuteness, health and resemblance. Also of interest is understanding if ratings can be manipulated with a simple care-giving skill intervention. If ratings can be improved through intervention it may be possible to deduce that father involvement will also improve.

Current Study

The use of a mixed method approach has gained considerable interest in the research community over the last decade (Sale, Lohfeld & Brazil, 2002). When employing this strategy it is important to understand where both qualitative and quantitative methods come from because they are driven by mutually exclusive paradigms. It is imperative to use the strengths of one paradigm to augment the weakness

of the other (Sale et al., 2002). This latter approach has the potential to offer a more in-depth understanding of complex phenomena like human behaviour. Therefore I have determined that using a mixed methodology is the most beneficial way to explore the complex relationship between fathers and their infants.

The following research questions were examined:

Will infant massage class enhance a father's perceived level of his parental competence, attachment and involvement? Since the father-infant relationship is reciprocal addressing this issue will focus on the father's characteristics and what he brings to the infant-father relationship. When fathers feel competent in their ability to parent, they generally show greater investment in their child's development. There is a plethora of knowledge around mother-infant attachment relationships. Much less is known about paternal attachment and how it impacts overall acceptance and investment in their infant's lives. In addition, this question explores the effectiveness of the infant massage intervention for the father. It is hypothesized that fathers in the experimental group will experience enhanced levels of competence, attachment and involvement.

Will infant massage class lead to improvements in the way fathers perceive their child's temperamental characteristics such as mood, adaptability and demandingness? Similar to the first question, this question will consider the characteristics the infant brings to the father-infant relationship. Some infant characteristics such as temperament are innate and can greatly affect the father-infant relationship. Within the curriculum of the IAIM, baby massage class educators work with parents to help them understand their infants communication style. It is hypothesized that fathers in the experimental group will

report improvements in the way that they rate their child's characteristics post intervention.

Will infant massage class influence how fathers rate their infants in the four domains of facial cues; health, happiness, cuteness and resemblance? Volk (2007) found that facial cues are indicative of paternal investment, especially in hypothetical adoption research. Of most importance, in this regard is the father's rating of resemblance. Volk found that when men rate their resemblance to the infant high, they are more likely to be involved. This is important to explore further as we know paternal investment is imperative in child development outcomes. This question will be addressed at the pre and post intervention level. It is predicted that fathers' ratings of their child's facial cues will show improvements after a brief infant massage intervention.

The final research question is how do fathers experience infant massage classes? This question is designed to determine the phenomenon of baby massage class and how fathers experience the class, skill-set and interaction with other fathers and their infants. Unfortunately in North American culture, touch seems to be associated with the mothers' role as caregiver. Society is gradually becoming aware of the importance of both mothers and fathers in providing physical contact and care. Gathering this qualitative information will help support the quantitative data in making recommendations and highlighting the experience fathers have with this intervention.

The current study builds on Cullen and associates' study to address the impact of infant massage on both members of a dyad. There are a few notable issues to consider with Cullen et al.'s (2000) study. First, the infant massage intervention was taught by a massage therapist. Little is mentioned about the instructor and the format used to present

fathers with relevant information. The current study utilized a semi-standardized curriculum designed by the International Association of Infant Massage. Although the curriculum involves demonstration of specific massage techniques it also includes discussions on parenting, encourages open lines of communication, helps develop mutual respect and teaches engagement/disengagement cues. A massage therapist may or may not be skilled in dealing with infant behaviour or cues which is important considering the quality of interaction depends on both members' level of enjoyment and motivation. The massage described by Cullen et al.,'s (2000) team is extremely mechanical and impersonal. In addition, it is not clear if the fathers were taught individually or in a class format. The current study made use of a class format to normalize the experience, decrease isolation and to promote the shift occurring in the culture of fatherhood (Mackreth, 2003).

Cullen et al., (2000) do not address the variables a child may bring to the relationship such as mood, demandingness and adaptability. The current study also differs by using stress as a measurement of involvement rather than observed behaviours, which may or may not be sensitive enough to indicate actual change. Finally, it is important to note the authors used a revised Maternal Behavior Rating Scale (MBRS-R) to assess quality of interaction between father and child during floor play time. One of the fundamental arguments offered by this author is the need to use tools of evaluation that were created to measure the paternal relationship. Some behaviours (i.e., poking) may be considered intrusive when exhibited by mothers and playful from fathers (Roggman, 2004). Therefore it is essential to not perpetuate the current problem in fatherhood literature; using measurements designed for mothers on fathers.

In an effort to improve current research on fatherhood and answer these research questions, a repeated measures quasi-experimental design was used. Baseline measurements were recorded pre and post intervention for both the experimental and control groups. The same tests were repeated at the end of the intervention period as a measurement of efficacy. The independent variable was measured using a self-reporting technique. Fathers were provided with a calendar to record the amount and type of time they spent with their infants.

The qualitative component of this research study lends itself to a modernist phenomenological approach. Meaning some “truth” about the phenomena of infant massage class for fathers can be discovered. According to Creswell (1998) the technique of phenomenology begins with a philosophical discussion that permits the researcher to then enter into the perceived experience of the participants. By following a rigorous protocol for data analysis the information gathered is deemed to be neutral and objective and allows the father’s experience to speak for itself.

Chapter Three

METHOD

Participants

Upon Brock Research Ethics Board approval (Appendix A), twenty-four infant-father dyads were recruited for this study. For consent purposes, the father agreed to his participation and his infant's participation when he signed the consent form (Appendix B). Experience with fatherhood ranged from first time to twelfth time. Previous experience as a father and sex of the infant were not controlled for as previous research suggests these factors may be statistically insignificant (Rustia & Abbott, 1993; Caldera, 2004). Both groups had five male and seven female infants for a total of ten male infants and fourteen female infants. The infants ranged in age from five months to fourteen months of age with a mean age of 8.08 months. Caldera (2004) suggests that this is the age that most infants are able to form a secure attachment with both parents.

The fathers ranged in age from 24 to 50 years of age with a mean of 33.6 years of age. The majority of fathers had a university degree or higher (n=12 or 50%), considered themselves of average wealth (n=19 or 79.2%) and had no previous infant-massage experience (n=19 or 79.2%). One hundred percent (n=24) of participating fathers live with their infant and 83.3% (n=20) are married to the infant's biological mother. Further descriptive and frequency data on the demographic information of participants can be found in table 1 (below).

TABLE 1: Descriptive Statistics of Participants

a)Descriptive

	N	Min	Max	Mean	Std
Age of infant in months	24	5	14	8.083	3.074
Father age	24	24	50	33.58	5.641
Length of relationship in years	24	2	19	6.75	4.356
Valid N (listwise)	24				

b) Sex of Infant

	Percent
Male	41.7
Female	58.3
Total	100

c) Level of education

	Percent
High School	12.5
College Diploma	20.8
University Degree	50
Graduate Degree	16.7
Total	100

d) Dating/Marital Status with infants mother

	Percent
Common Law	8.3
Engaged	8.3
Married	83.3
Total	100

e) Family wealth

	Percent
Not very wealthy	16.7
Average wealth	79.2
Very wealthy	4.2
Total	100

f) Previous baby massage

	Percent
No baby massage experience	79.2
Some baby massage experience	20.8
Total	100

Recruitment

To gather participants for the experimental group, recruitment posters were placed in various community settings including the YMCA, Brock University and The Early Learning Years Centers (Appendix C). I contacted the St. Catharine's standard in hopes to increase awareness of the study, which resulted in an interview and a large two page article (Appendix D). In addition, I utilized electronic postings on www.kijiji.ca and www.craigslist.com to recruit fathers. Participants were contacted by email, leaving their preferred method of contact. The telephone/email script was used to provide participants with further information about the study (Appendix E). Three series of classes were run to fulfill participation requirements. The first class consisted of 3 infant-father dyads, the second 6 dyads and the third 3 dyads.

The control group was populated using a snowball sampling technique. The researcher knew a few fathers who fit the specifications for the study and asked them to provide names of others who may wish to participate. Eventually twelve fathers were recruited for the control group in this way.

Measures

The Parent Stress Index

The PSI is a commercially available tool designed to measure parent stress (Abidin, 1995). It was used to gather pre and post intervention data for both the control and experimental groups. The PSI was developed for use as: (a) screening for early identification, (b) assessment for individual diagnosis, (c) pre-post measurement of intervention effectiveness, (d) research aimed at studying the effects of stress on parent-

child interactions and in relation to other psychological variables. The test consists of 120 items standardized for use with parents of children 1 month – 12 years of age.

It is important to note that the test makes many assumptions for use. The most important assumption is the notion that stress is additive and characterized by one of three domains of stressors. The first domain is child characteristics which include: the child's distractibility/hyperactivity, adaptability, reinforcement of the parent, demandingness, mood and acceptability. The second domain of stressors is called parent characteristics. Included in this domain are parent competence, isolation, attachment, health, role restriction, depression and spouse. The third domain of stressors is called situational/demographic life stress. Examples include marriage, pregnancy or the death of a family member.

The PSI is a measure of parent-infant relationship quality. I believe that parenting stress scores will mirror the quality of the father-infant relationship. A high score on the PSI would indicate a problematic relationship either within the parent domain or the child domain. Although the fathers in this study are generally assumed to be in the normative range, the PSI was used to identify the effectiveness of the infant-massage intervention. The PSI provides information on the three dependent variables that I am measuring. The first is called the Child Domain. The second is the Parent Domain and the third is Life Stress. A fourth set of data will also be available, but not considered an outcome variable. This data is a combination of the Child Domain and The Parent Domain and is called Total Stress. Prior to analysis all subscales were tested for internal consistency reliability, for which they all rated ($\alpha > .70$).

Normative data on one hundred fathers can be found in conjunction with the baseline scores for the experimental and control groups of this study in table 2. Any score between the fifteenth and eighty-fifth percentile is considered in the normal range. Any score over the eighty-fifth percentile should be flagged for further support. Scores under the fifteenth percentile may also need to be flagged for further investigation as the respondent may be either defensive, dishonest or disengaged (Abidin, 1995). The test provides a defensiveness measure which suggests caution be used when raw scores are below twenty four. Finally the PSI provides a score for life stress which may act as a barometer for the participant's scores in the parent and child domain.

Table 2 PSI Mean scores for fathers. Normative data from Abidin (1995).

	Abidin's (1995)		Control pre		Experimental pre	
	M	SD	M	SD	M	SD
Child Domain	92.9	11.9	94	19.2	94	15.7
Adaptability	22.3	2.7	25	7	24.8	4.3
Acceptability	10	1.9	10.8	3.2	10.7	2.6
Demandingness	18.4	3.6	15.7	3.8	16	3.7
Mood	10.2	1.5	8.5	2.8	8.3	2.5
Distractibility	21.8	3.2	24.5	2.9	25.4	5.6
Reinforces Parent	10.2	2.3	9.6	3.3	8.3	1.8
Parent Domain	108.7	18.4	107.5	22.6	106.8	15.5
Depression	17.2	4.6	14.9	4.3	16.5	3.9
Attachment	11.3	2.1	11.9	3.3	11.3	2.1
Role restriction	15.6	5.1	17.1	4.7	16.6	5.1
Competence	26.9	5.3	24.6	6	23.9	3.9
Isolation	10.4	2.8	13.4	4.9	12	2.3
Spouse	15.5	4.9	14.8	4.5	13.8	3.2
Health	10.9	2.7	10.8	2.4	12.8	3.3
Total Stress	201.6	26.5	201.5	40.1	200.1	25.6
Life Stress	1.8	1.4	8.3	5.9	5.7	7.6
Defensiveness	NA	NA	30.1	7.6	28.4	5

The first subscale in the parent domain consists of parental competence. When participants score high on this subscale they may lack an understanding of child development or child management skills. They may also find parenting less reinforcing than they had anticipated. Responses are often high in this domain when the child has a disability. High scores on this subscale are often associated with criticism of the child's other parent often in conjunction with high scores on the spouse subscale. Normal scores for this subscale fall between 22 and 35.

The second subscale in the parent domain is isolation. Abidin (1995) suggests immediate intervention when isolation scores are extremely elevated. People who score high in this area may feel alone and cut off from their peers, relatives and even their spouse. In terms of child outcomes, when parents are feeling isolated the child may also feel rejected. Normal scores fall between 9 and 17. The third subscale in the parent domain is attachment. Not a "traditional" measure of attachment, this subscale measures how emotionally close the parent feels to the child. Parents who score high in this domain may be unable to accurately understand their child's emotional cues. Normal scores for the attachment subscale are between 9 and 16. The health subscale of the parent domain measures parental health. This scale is usually elevated with high levels of

stress. Normal scores for this subscale are between 8 and 16. The fifth subscale measures parental role restriction. When scores in this subscale are elevated the parent may find their role frustrating and they may find it difficult to maintain their pre-child identity. There may also be some resentment and anger towards either the child or spouse or both when scores in this subscale are high. The sixth subscale of the parent domain measures the respondent's level of depression. Questions deal with unhappy feelings, and guilt for example. Parents with high levels in this subscale may find it difficult to find the energy to fulfil their parenting responsibilities. Normal scores on this subscale are between 15 and 26. The final subscale of the parent domain is spousal support. Questions are designed to measure feelings of emotional connectedness and support from the other parent. Elevated scores on this subscale may be present when the parents have strict sex role delineations. Normal scores for this subscale are between 11 and 22.

The parent domain score is a summation of the aforementioned subscales. Abidin (1995) states it is important to look at parent and child functioning separately and together when evaluating the family unit. By looking at the domains separately it is often more clear where issues are and solutions can be targeted more effectively. When scores in the parent domain are elevated the parent may feel overwhelmed or inadequate in their parenting role. Normative data for the parent domain is between 99 and 148.

The first subscale of the child domain measures distractibility or hyperactivity. A high score in this subscale is often associated with attention deficit disorder. If the child does not exhibit hyperactive behaviours but the score is still high the parent may either lack the energy to keep up with the child's normative behaviour or they may have unreasonable expectations for their child's behaviour (Abidin, 1995). A score between 19

and 29 would fall in the normative range. The second subscale measures adaptability. Questions on this subscale address how the child adjusts to changes in their physical and social environment. The less adaptable the child is the more difficult parenting can become. A strong indicator of relationship quality can be assessed by looking at this subscale in the child domain and the attachment subscale in the parent domain. When a parent scores high in both subscales they often say that they feel rejected by their infant. The normative range for adaptability is between 19 and 30. The reinforces parent subscale of the child domain deals with the parents feelings of rejection from the infant. High scores in this subscale would suggest the relationship fails to produce good feelings for the parent. A few suggestions as to why a high score may exist include: the child has organic or neurological problems, the child is depressed, the parent is misinterpreting the child's cues or the parent is depressed and projecting their negative responses onto the child (Abidin, 1995). Normative scores fall between 6 and 12. Demandingness is the fourth subscale in the child domain. It is the measurement of the parents perception of the demands the child places on them. Often young parents score high in this area. Abidin (1995) also suggests separation anxiety can be a factor in high scores on this subscale. A normative score would be between 13 and 22. The mood subscale is designed to measure the parents perception of the child's emotional state. A normative score in this subscale would be between 6 and 12. The final subscale in the child domain is acceptability. This scale is designed to measure the parents expectations for the child's physical, intellectual and emotional capacity. If the child's characteristics don't match the parents expectations a high score can be expected. A normative score would fall between 8 and 16.

The child domain is a summation of all the aforementioned subscales. In general when scores are high in this domain, the child's characteristics either perceived or real make parenting more difficult and stressful for the adult. Normative scores as depicted in table 3 indicate that child domain scores should fall between 79 and 116.

The life stress score is nineteen independent questions based on situational events or occurrences that the parent has little to no control over. For example, divorce, marriage, separation, pregnancy, legal problems and the death of an immediate family member are on the list of questions. Normal scores for this scale fall between 2 and 14. Abidin (1995) suggests further professional consultation when participants score at or above 17 on the life stress scale and their raw score for total stress is in the 250 range. No fathers in either the control or experimental group fit this criteria at baseline. It should be noted that life stress scores were collected in this project to provide a subjective look into the external "stressors" present in the fathers' lives rather than as an outcome variable.

Demographic information

A demographic information sheet (Appendix F) was administered to all fathers at the first point of contact as a way to gather background information. This information was used to determine the similarity of the control and experimental groups. This is important when comparing group data to rule out the possibility that the groups were different, which could account for any change in their pre and post intervention scores. Secondly, this tool assisted data analysis by helping rule out potential confounding variables in the results such as age of father and past infant massage experience.

Self-report measure

The independent variable was measured using a self-report calendar (Appendix G). Both the control group and the experimental group were asked to monitor the amount and type of interaction they had with their infants over the study duration. Three options for type of interaction were offered; touch interactions such as cuddling, non-touch interactions such as reading and activities of daily living such as changing diapers and feeding. The fathers were asked to record the amount of time they spent with their infant in each of these three categories by marking the time in minutes in the appropriate calendar box.

Facial Cues

The facial cues rating scale has been developed and evaluated by Volk and Quinsey (2002). It is a series of lykert-scales that are designed to have the father rate their infant on perceived cuteness, health, resemblance and happiness. The development of this measure is grounded in evolution theory and supported by empirical evidence (Volk & Quinsey, 2002; Volk, Lukjanczuk, & Quinsey, 2005; Volk & Quinsey, 2007). For example, one scale asks parents to rate their child's level of cuteness. A score of one indicates "not at all cute" and a score of seven indicates "very cute". Please see Appendix H for further example of the faces questionnaire.

Phenomenological interview

The phenomenological interview consisted of eight open-ended questions (Appendix I). The interview was conducted in a semi-structured format. The main assumption in this measure is that phenomenological interviews conducted within a modernist paradigm are able to get at the "real" or "true" experience of the participants

through thoughtful questions, probing and bracketing of the researcher's preconceived notions. For the duration of the research project from design to implementation and analysis, I kept a document on my computer called "phenomenology diary". I made note of thoughts as they arose such as "two Dad's interviewed said they didn't think their child liked the massage-I thought, from observing the class, they really enjoyed it (more so than other children)". I referred back to this diary when I was analyzed the data to make sure these thoughts didn't interfere with the father's spoken words.

Intervention

I used infant massage techniques described by the International Association of Infant Massage (IAIM) in this study. The IAIM was established in 1976 by Vimala McClure to provide universal training to certified massage instructors. McClure developed a blend of techniques from Indian massage, Swedish massage, Yoga and Reflexology to create a comprehensive education for parents to use with their infants. The IAIM has grown significantly and now has instructors and chapters in most countries (Simpson, 2001).

The IAIM instructor never touches the infant; rather they demonstrate the strokes on a doll for the parent to mimic with their own child (Simpson, 2001). The IAIM suggests 4-5 sessions of infant massage teaching to cover the entire body. Teaching often occurs in a class setting, which can also benefit the infant-parent dyad by reducing isolation. The IAIM also suggests that in a class setting, the certified infant massage instructor (CIMI) can facilitate parent support on a variety of infant development issues such as colic, bonding and feelings of efficacy (Adamson, 1996).

Procedure

The study took place in two locations. The first infant massage series was held in the Canadian Center for Lifespan Development Research at Brock University, St.Catharines, Canada. The second and third series were held at BizzyBee Playcentre in Toronto, Canada. Both locations had warm, carpeted rooms with plenty of floor space. The fathers in the experimental group were also asked to participate in an interview. For their convenience this interview was held at a location of their choice.

The fathers in the control group were not required to travel to any location for their participation. Everything was arranged over email and sent through Canada Post. All documents were returned to the student investigator through self-addressed and pre-paid envelopes.

The Experimental Condition: At the first class, the fathers were reminded of the goals and methods of the study and asked to provide written consent for their participation in the study. At this time they were assigned a unique ID code which was then the only identifying marker of their identity on all written documents. The experimental condition ran for four consecutive weeks. The class series was held a total of three times to reach the desired number of participants. Infant massage instruction was preformed by a Certified Infant Massage Instructor and followed the four class outline as described by the International Association of Infant Massage (Appendix J).

The Control Condition: This group operated similar to a wait-list control group. Once identified, fathers provided their home or work mailing address. They received an information package containing the informed consent document and the first set of questionnaires. The fathers were instructed to fill out the documents and send them back

in the return pre-paid envelope. After a period of four weeks the fathers were sent a second package of information to complete and return.

Fathers in both the experimental and control group were asked to fill out the Parent Stress Index and demographic information sheet on the first encounter. They were asked to record the amount and type of interaction they had with their infants over the course of the study. At the end of the four weeks the fathers were asked to complete the PSI for the second time. At this time the fathers in the experimental group were asked to arrange a time for the qualitative interview with the primary student investigator. At the completion of the interview or the four week recording period for the control group fathers, the father's were debriefed on the deception and asked to re-consent to the inclusion of their data (Appendix K). At this stage, the fathers received a \$50 honorarium and were thanked for their participation. They were informed they could contact the researcher should they have any questions about the research and invited to leave their email address if they wanted an executive summary of results at the end of the study.

The phenomenological interview consisted of 8 open-ended questions. The interview was conducted in a semi-structured format. The interviews were audio-taped with permission of the participants for later transcription. The interview generally took ten to fifteen minutes and was conducted at location convenient for the father.

Plan for Analysis

Quantitative Analysis

The quantitative data gathered was analyzed using SPSS, a statistical software package. A repeated measures MANOVA was conducted to measure the statistical significance between groups (experimental and control). This test was selected because

two independent groups were being exposed to a repeated measure (PSI and Faces Questionnaire). There is one independent variable and 4 dependent variables. By using a MANOVA I was able to reduce the chance of a type 1 error which could be caused by running multiple ANOVAs. There are a few assumptions associated with this test. I must assume independence of observations and normality of distribution. The final assumption is sphericity, which means the estimate error of variance is not biased. Follow up ANOVAs will be conducted if necessary.

Qualitative Analysis

According to Creswell, (1998) to analyze phenomenological interviews researchers must follow four specific steps. The first step is to become very familiar with all participants' responses. The author suggests that the researcher delve into the participant's answers by reading and re-reading the transcribed material. Once the researcher has become intimate with the details of the participants responses they can proceed to extract significant statements from each response. The researcher then clusters the significant statements into meaningful themes. Finally the researcher weaves the themes together into a narrative description of the phenomenon under examination. Ultimately it is the goal of the researcher to use these rich narratives to enlighten the research questions and discussion from the beginning of the study.

Imperative to phenomenology is allowing the data to speak for itself. This means that the researcher must "bracket" their own feelings or experience of the phenomena in order to be fully available for "real" themes and meanings to emerge. "Bracketing" is the process of setting aside preconceived notions, themes, ideas and theory, to allow the participants "voice" to be heard (Groenwald, 2004). I bracketed my own thoughts and

biases by keeping a research journal. Throughout the process I noted any arising thoughts or themes as a way to “dump” them from my mind. This allowed me to check that my preconceived thoughts were not interfering with the actual voice of the participants. Of primary concern was my clinical bias that infant massage is beneficial to both infant and father. I continuously had to keep this bias in the foreground of my mind while I collected and analyzed the interview data. One notion I found myself reverting to concerned the fathers who said they didn’t see the benefits of infant massage for themselves or their infant. By noting these thoughts on paper, and keeping them beside me throughout the process I was reminded that these fathers were entitled to their own views even though my observations didn’t match their expressed experience.

Chapter Four

RESULTS

Quantitative Data

The first two research questions concerned the parent stress index (PSI).

In the case of missing data, Abidin (1995) outlines the following procedure: scores should only be calculated when a) not more than three items were missing from either the Child Domain or the Parent Domain, b) not more than one item was missing from a subscale and c) not more than five items missing from the entire PSI (not including the life stress scale). When this criterion was met the results were computed by averaging all the data from the particular subscale and divided by the number of items answered. All responses were rounded to the nearest whole number. All data that was missing fit the criteria above, thus none had to be discarded. The breakdown of missing data is as follows: in the experimental group missing data was found in n=4 cases at baseline and n=3 cases post intervention, in the control group missing data was found in n=1 case at baseline and n=1 case at time two. It is important to note that missing data was only found in the PSI and all other data gathering instruments were complete.

Multivariate Analysis

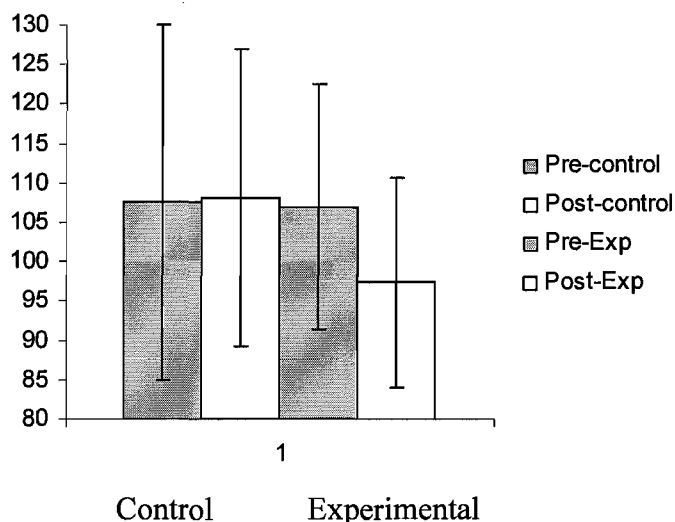
A 2 (groups) X 4 (measures) X 2 (times) repeated measures MANOVA was conducted on the PSI data. The measures or dependent variables were entered into SPSS as Child Domain, Parent Domain, Total Stress and Life Stress. Pre and Post scores were entered at the two times or levels. Group or condition (i.e. control and experimental) were entered as the independent variables. Assumptions were tested, with nothing of

significance to note. There was no significant main effect of condition or time ($p < .05$), however there was a significant time X group interaction (Pillai's Trace = .38 ($F(3, 20) = 4.07$, $p = .02$, $\eta^2_{\text{partial}} = .38$)). Follow up ANOVAs were conducted on the time X group interaction effect. One ANOVA was conducted for each dependent variable and will be discussed in relation to the appropriate research questions below:

1. Will infant massage class enhance a father's perceived level of his parental competence, attachment and involvement?

The follow up ANOVA showed a significant interaction effect for the parent domain ($F(1, 22) = 5.72$, $p = 0.03$, $\eta^2_{\text{partial}} = .21$)). As depicted in figure 1, the fathers in the control group scored slightly higher at time two than their baseline score. In addition, the fathers in the experimental group showed a noticeable decline in stress scores post infant massage intervention. Scores for the experimental group pre intervention were ($M = 106.83$, $SD = 15.52$) and post intervention ($M = 97.33$, $SD = 13.38$). Scores for the control group pre intervention were ($M = 107.5$, $SD = 22.62$) and post intervention ($M = 108.08$, $SD = 18.43$).

Figure 1: Estimates Marginal Means of the Parent Domain

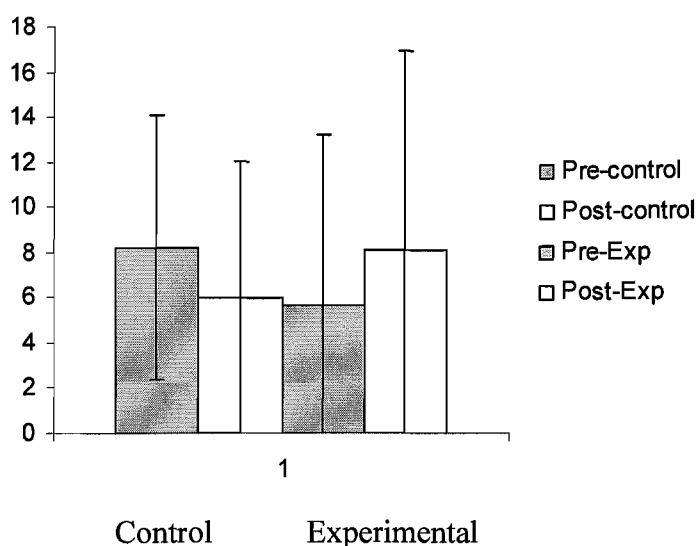


2. Will infant massage class lead to improvements in the way that fathers perceive their child's temperamental characteristics such as mood, adaptability and demandingness?

In the follow up ANOVA, no significant effect was found in the child domain for group X time. In addition, no significant effect was found for total stress or life stress (to be discussed). The total stress score is a summation of both child and parent domains. This score will give you an overall picture of stress in the parent-child unit.

In the follow up ANOVA, no significant effect was found for life stress, however this variable approached significance at ($p = .08$, $\eta^2_{\text{partial}} = .13$). This variable should not be considered an outcome variable, but rather an informant to the parent and child domain stress scores. As depicted in figure 2 the control group experienced higher - albeit not statistically significant levels of life stress than the control group at baseline. At time two the experimental group fathers life stress increased and the control group fathers decreased. Pre intervention scores for the experimental group were ($M = 5.67$, $SD = 7.61$) and post ($M = 8.17$, $SD = 8.82$). Pre intervention scores for the control group were ($M = 8.25$, $SD = 5.88$) and post intervention ($M = 6$, $SD = 6.03$).

Figure 2: Estimated Marginal Means of Life Stress



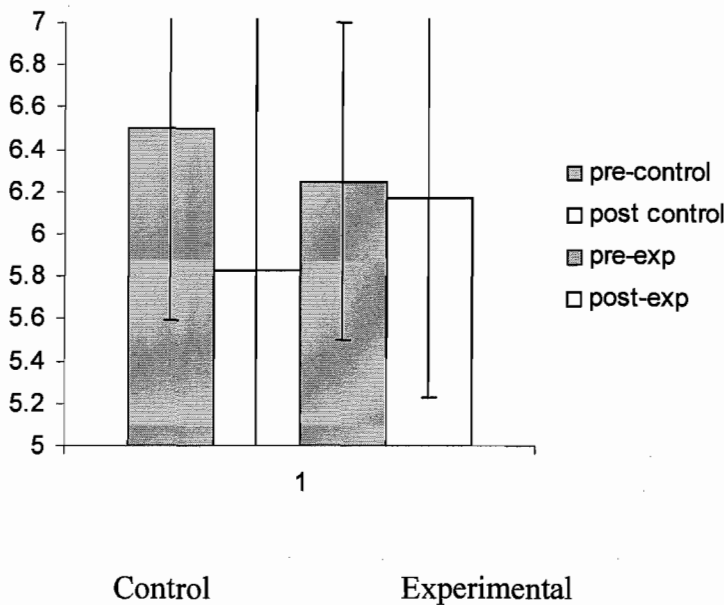
3. Will infant massage class influence how fathers rate their infants in the four domains of facial cues; health, happiness, cuteness and resemblance?

A 2 (group) X 4 (measures) X 2 (times) repeated measures MANOVA was conducted with the facial cues data. The four facial cues were entered as dependent variables (health, happiness, cuteness and resemblance) each with pre and post scores entered as different levels. Group information (i.e., control and experimental) were entered as the independent variables. There was a non significant ($p < .05$) main effect of groups (Pillai's Trace = .16 ($F(4,19) = .91$, $p = .48$, $\eta^2_{\text{partial}} = .16$)). There was also a non-significant main effect of time (Pillai's Trace = .24 ($F(4, 19) = 1.54$, $p = .23$, $\eta^2 = .24$)). Finally, there was no significant time X group interaction effect (Pillai's Trace = .10, ($F(4, 19) = .54$, $p = .71$, $\eta^2_{\text{partial}} = .10$)).

Follow up ANOVAs reported no significant time X group interactions for any of the four facial cues (dependent variables). However, trends were noted for health and resemblance. These findings approached significance and should be considered

exploratory. Regarding ratings of health ($F(1) = 1.63, p = .22, \eta^2_{\text{partial}} = .07$). Although both groups reported a lower rating of health at time two from time one, the experimental group has a much less steep decline in rating than the control group (see figure 3). Pre intervention scores for the experimental group were ($M = 6.25, SD = .754$) and post intervention ($M = 6.167, SD = .937$). Pre intervention scores for the control group were ($M = 6.5, SD = .905$) and post intervention ($M = 5.833, SD = 1.267$).

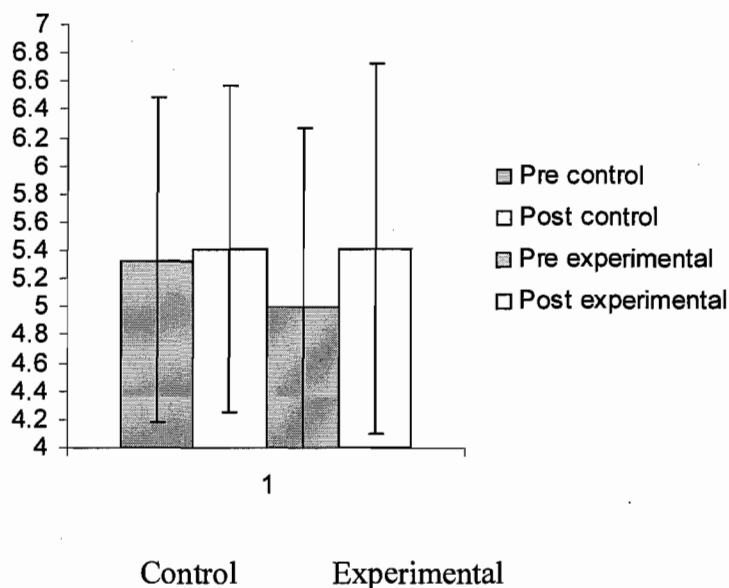
Figure 3: Estimated Marginal means of Health



In regards to ratings of resemblance ($F(1) = 1.06, p = .32, \eta^2_{\text{partial}} = .46$) the fathers in both groups reported a general increase in feelings of resemblance from time one to time two. However the experimental group fathers reported a more marked improvement (see figure 4). Pre intervention scores for the experimental group were ($M = 5.000, SD = 1.279$) and post intervention ($M = 5.417, SD = 1.311$). Pre intervention

scores for the control group were ($M = 5.333$, $SD = 1.155$) and post intervention ($M = 5.417$, $SD = 1.311$).

Figure 4: Estimated Marginal Means of Resemblance



Qualitative Data

Please note the qualitative results presented only represent the experience of the fathers in the experimental group. The purpose of the interview was to illustrate the phenomena of infant massage class. Since the fathers in the experimental group were the only participants exposed to the intervention they were the only ones asked about their experience. Thus caution must be used when interpreting these responses as not all fathers were given the opportunity to answer these questions. The findings are summarized in table 4.

Question one: How do you experience being a father?

The first theme that emerged was the idea that fatherhood was experienced as a combination of positive and negative phenomena (58% or $n=7$). Fathers described it as a

tradeoff between the greatest, best, most fun, most wonderful thing coupled with the most difficult, crazy, hectic and constant thing they have done. One father said “it’s a lot of fun, it’s a lot of work and I mean I am really enjoying it”. Another father said “...life is unpredictable sometimes in good ways and sometimes in inconvenient ways, but overall the tradeoff is a good one I think”. The second theme was a variation on the first, but where fathers noted only positive adjectives associated with fatherhood (25% or n=3). One father said “I enjoy it very much. I think of it as a natural vocation for myself and it is one that I am very grateful for”. The final theme to emerge from this question was the notion of expectations (17% or n=2). The two fathers that talked about expectations noted they were not prepared for the amount of work a baby would require or the amount of connection they would feel to their baby. One father said “Um, it’s a lot of fun and I didn’t know it would be fun right away”.

Question two: How has your relationship with your child evolved since his/her birth?

The major theme to emerge from this question were changes in the child that helped progress the father-infant relationship (67% or n=8). Fathers described their child as becoming more interactive, expressive and getting older as ways their relationship evolved. One father said his relationship evolved “once she became more interactive...she’s not just a feeding, pooing machine, she’s actually like a human that has you know feelings and all that kind of stuff”. Two dads within this category also described becoming part of the daily routine, once breast-feeding was weaned helped them grow their relationship with their baby. One dad said “...at first he was all about Mommy, his Mommy had the food and was the predominant caregiver cause I was at work, but now that he’s older and he is eating different foods, so I am part of that daily

routine". The second theme that emerged was a change in the parent that advanced the relationship (17% or n=2). One father described feeling closer to his son now because "I'm being more involved and I think having more involvement gives you more experience, um it just makes you think more and know more..." The final theme to emerge was a combination of changes in the self and changes in the child that helped progress the relationship. Only one father or (8% or n=1) of responses fell in this theme. This father described his experience with his son "I've really gotten to know him and understand him....and I think he is kind of getting used to me..." There was one father's response which did not fit into any of the themes for this question and has been labeled other (8% or n=1). The theme of this father's response was the birth of his baby and a feeling of connection from this experience.

Question three: Describe how you felt in the infant massage class

The majority of fathers expressed a positive experience in the infant massage class (58% or n=7). The positive experience theme was described as fun, a good time and feeling comfortable. The fathers also provided possible reasons for their answer including learning new information, seeing other young dads with their babies and enjoying special time with their child. One father reported "it was neat to be in a baby group that wasn't all mothers...I have been to a couple ...and it was myself and mothers who were all on maternity leave, so it was nice to be with a bunch of fathers". The second theme to emerge from the data was the idea of some difficulty but still a positive overall experience (34% or n=4). Reasons for difficulty included the child's behaviour, feeling awkward at first because attending the class was not their idea and frustration that the child didn't appear to appreciate it as much as they had hoped. Despite some difficulty all

the participants in this category described having a positive experience on the whole. One father said at first he felt “anxiety because I know when she is stationary she does get upset, but you are a good facilitator and the length of the classes were not too long and she became progressively better, so it ah became an easier thing to do”. The final theme was neutral (8% or n=1). This father described his experience as being a care-taker for his daughter and used no value laden adjectives in his response.

Question four: Has your relationship with your child changed since coming to this class?

Three themes emerged from this question. The first theme is a change in relationship but the fathers offer reasons other than infant massage for this change (42% or n=5). Among the reasons for change included, the baby evolving as a person, being a month older than when we started and one father said “...just because he is doing more things. The more things he does the more things I can do with him”. The second theme to emerge from this question was no change in relationship (33% or n=4). Fathers in this category saw little to no change in their relationship over the one month period. Three of the four fathers however mention the class gave them something else to do with their child and one father mentioned “its given me more of a mind-set how important touch can be though, even just simply not necessarily massage, even holding, cuddling...being more involved in touch and how important that is for your child in his rearing of”. The final theme was changes that occurred in the father (25% or n=3). Dads in this category mentioned that there were changes in their behaviour or activities that they now do with their child. One father in this category said “I think that I am much more eager to pick her up and play with her”.

Question five: What was it like using this skill at home?

Two themes emerged from this question. The first is categorized around descriptions of challenge (75% or n=9). The fathers explain there were challenges in finding time to do the massage in an already set routine, the baby not always being in the mood for a massage or forgetting to have the sheets with them. One father in this category said he found it “challenging...because I would do it before he would go to bed, he would sometimes get that little boost of before bed energy, and he would sort of be very difficult to sort of pin down and it just it almost fueled his energy as much as it kind of calmed him down”. Another father said “I’ll be honest, I don’t think I did it as often as I wanted to. It was usually about two or three times a week. I was kind of hoping I could do it more four or five, but you know reality gets in the way.” The second theme to emerge was characterized by a positive experience (17% or n=2). One father described the process as becoming easier as he discovered what his daughter liked and didn’t like. One father’s response did not fit into either theme and has been categorized as other (8% or n=1). This father described thinking his daughter thought the massage was part of a game. His response was lacking any describing adjectives as were noted in the other themes.

Question six: How did your child respond to being massaged?

Two themes emerged in response to this question. The first is characterized by both enjoyment and disinterest (67% or n=8). Most responses included positive and negative adjectives and some responded with the areas of the body the baby liked and which ones they didn’t like. One father’s response was “positive and negative...if she liked it she would let you do it. If she didn’t, she will scream and kick and pull away and

stuff like that”. The second theme was classified as tolerance (33% or n=4). The fathers said the baby would continue playing or would seem to be placating the father. One father explained “she just continued on doing what she normally does and just kind of ignored it”. Another father said “...she tolerates it for a bit, and then ah you know...she wants to get going”.

Question seven: Would you recommend infant massage class to other fathers?

Two clear themes emerged in this data. The first and majority of responses were yes (75% or n=9). The fathers in this group said they would recommend infant massage class for a variety of reasons including, something extra to do with their baby. One father said “some fathers who are uncomfortable could see this as a gateway to being a little bit more at ease with their kids”. Another father said “I think it is a great idea. I think it is an excellent bonding tool”. The second theme was recommending infant massage on a case-by-case basis (25% or n=3). Fathers in this category said although their child didn’t seem to get something out of it, they would still recommend it to other fathers. One father said “...every child is different and its one of the things that I have learned now in the last six months, that what works for one doesn’t necessarily work for yours right... I would definitely recommend giving it a shot and if it works for your baby great. I wish Mike liked it better, I really do”.

Question eight: What was the best part of this experience for you?

Three themes emerged from this question. The first is titled babies and dads (33% or n=4). In this category fathers explained that it was nice to see other dads with babies, rather than just mothers. One father noted “I don’t know too many kids and parents, so it was neat to see the other kids and see how they are developing alongside Kate and see the

other parents and how they interact with the kid". The second theme that emerged was learning something new (25% or n=3). Responses in this category included learning new skills and appreciating the pamphlets on bonding. One father said that tracking his time "put into perspective the amount of time you are actually spending interacting with your child as opposed to time that you are just with your child...just cuz you are in the same room doesn't mean that you are spending time together". The third theme revolved around spending one-on-one time with their baby (25% or n=3). The fathers in this category said they enjoyed hanging out with their baby and one said "I actually get to go out with him, and you know spend time with him for a purpose rather than just ok Mommy needs a break, lets go play". The final two responses did not fit into any of the categories mentioned and have been classified as other (17% or n=2). One father noted the ease of the class and attitude of the instructor and the other said "...now I am a lot more willing to keep her for an hour (without mom), it doesn't seem that bad anymore. That was a big lesson for me, after twelve kids, you see, always learning always learning.... The engagement and the interaction yes, but that more than anything was the most that I took away from it".

Question nine: Comments

The final question was to gather any additional feedback. Most of the responses were either nothing to note or a reiteration of the best part of the experience for the fathers. Of note were two responses (17% or n=2) that the instruction was over too quickly and they would like more time spent on the actual demonstration of the strokes. A summary of these results is available in table 4.

TABLE 4: Qualitative Results Summary

	Themes	%	n
Question 1	<i>How do you experience being a father?</i>		
	Positive and Negative	58%	7
	Positive only	25%	3
	Preconceived expectations	17%	2
Question 2	<i>How has your relationship with your child evolved since his/her birth?</i>		
	Change in child	67%	8
	Change in self	17%	2
	Change in both self and child	8%	1
	Other	8%	1
Question 3	<i>How you felt in IM class?</i>		
	Positive experience	58%	7
	Difficult, but positive overall	34%	4
	Neutral	8%	1
Question 4	<i>Change in relationship since coming to class?</i>		
	Change in relationship, not due to IM	42%	5
	No change in relationship	33%	4
	Changes in self	25%	3
Question 5	<i>What was it like using this skill at home?</i>		
	Challenging	75%	9
	Positive	17%	2
	Other	8%	1
Question 6	<i>How did child respond to massage?</i>		
	Sometimes yes, sometimes no	67%	8
	Tolerance	33%	4
Question 7	<i>Recommend IM class?</i>		
	Definitely	75%	9
	Case-by-case	25%	3
Question 8	<i>Best part of experience?</i>		
	Babies and Dads	33%	4
	Learning something new	25%	3
	Hanging out	25%	3
	Other	17%	2
Question 9	<i>Comments</i>		
	No new comments	50%	6
	No comment	33%	4
	Functional- i.e. slow down instruction	17%	2

Chapter 5

DISCUSSION

The aim of the present study was to understand the effectiveness of an infant massage intervention on fathers perceived level of stress and ratings of infant facial cues. The results will be discussed by addressing each research question and then through a general discussion of the findings. Finally, limitations of the study will be explored and future research ideas will be recommended.

Research question one: Will infant massage class enhance a father's perceived level of his parental competence, attachment and involvement?

A significant interaction was found in the parent domain of the Parent Stress Index. Fathers who experienced infant massage instruction considerably decreased their reported parent domain stress scores post intervention. For fathers in the control group parent domain stress scores actually increased slightly at time two. This suggests infant massage may be an effective way to decrease stress around feelings of competence, isolation, attachment, personal health and feelings of depression, spousal support and role restriction.

The individual subscales of the parent domain explain further the effectiveness of the infant massage intervention. Abidin (1995) suggests parent education classes that focus on group discussion as a way to increase parent's feelings of emotional support, information gathering and improving competence. The infant massage classes focused a significant portion of time on sharing of experiences and learning a new skill. It can be

assumed that these experiences lead to a higher sense of self-efficacy around parenting ability which may account for the lower scores in stress on this domain. One father said for “... some fathers’ who are uncomfortable... (infant massage) could be a gateway to being a little bit more at ease with their kids”.

Isolation is the second subscale of the parent domain. By holding the infant massage instruction in a class format as suggested by Mackereth (2003), it is possible that the fathers decreased their feelings of isolation. They were able to participate in a weekly class with other fathers with infants of a similar age. Many of the fathers in the experimental group also noted that because they are not on paternity leave with their infant they did not regularly have the opportunity to meet other fathers or babies. Mackreth (2003) claims the class experience can encourage the normalization of fatherhood and help decrease the touch stigma that seems to persist in North American society for fathers.

The third subscale of the parent domain is attachment. Although this is not a traditional measure of attachment, it does measure how emotionally close the father feels towards their infant. Not surprising that the fathers in the experimental group felt more bonded to their babies after spending time with them in the infant massage class. The IAIM curriculum focuses on developing an understanding of engagement and disengagement cues which could result in better didactic communication (Simpson, 2001) and thus improved feelings of emotional connectedness. One father said he thought infant massage was “a great idea, I think it is an excellent bonding tool”.

The fourth subscale of the parent domain is health. Abidin (1995) notes when scores on this subscale are low, parental overall stress levels are also typically low. If

fathers are generally feeling less stressed because they feel more competent in their ability to handle their parenting responsibilities they may be able to anticipate better overall general health. It is also possible that health scores improved due to the actual massaging of the baby. As noted in previous research, the bi-directional benefits of infant massage for the provider include reduction in depressed mood and lower anxiety and cortisol levels (Field, et al., 1998). These findings may also account for a reduction in the depression subscale of the parent domain.

The final two subscales of the parent domain are spousal support and role restriction. It is possible that the infant massage intervention provided an activity that the fathers were able to do with other fathers which translated to greater role acceptance. For example, a few fathers in the experimental group reported that they enjoyed spending time with their baby that was dedicated to them and not just a break for mom. As noted in the literature, men often have a narrow support network and rely more on their spouse for emotional support (Matthey & Barnett, 1999). In the postnatal period women are often less available to their spouse due to their increased involvement with the infant. This discrepancy in emotional support available versus desired is what often accounts for spousal friction in the early postpartum period (Matthey & Barnett, 1999). It is possible experimental group fathers received some emotional support from the group atmosphere which may have worked to cushion some feelings towards their spouses' availability and support.

The findings from this study are also supported by McBride's work (1991). Similarly he found, fathers reported higher levels of child care involvement, improved feelings of parental competence and an overall greater involvement in their child's

development post intervention. Teaching father's infant massage clearly improved their feelings of efficacy towards being a parent. Future research may wish to explore if fathers actual level of involvement increases with increased feelings of competence.

Research question two: Will infant massage class lead to improvements in the way that fathers perceive their child's temperamental characteristics such as mood, adaptability and demandingness?

There was no difference between groups after the intervention for stress in the child domain. The child domain consists of scales of adaptability, acceptability, demandingness, mood, distractibility and reinforcing the parent. The benefits of infant massage for the infant are vast and well documented (Dieter, et al., 2003; Field, 1995; Field & Hernandez-Reif, 2001; Jump, Fargo & Akers, 2006). Most of the benefits for the infant in these studies are measured through objective physiological responses, such as weight gain and cortisol levels. In this study it is possible that the subscales used in the child domain were too subjective to measure actual change in the child. It is also possible that change actually did occur, but the PSI was not sensitive enough to pick up on these changes. Somewhat related, it is also possible that they attributed the change in their infant to a change in themselves or their relationship. Regardless, the father's did not see much change in their child, perceived or real which may explain some of their responses in the qualitative component.

In regards to life stress, an interesting finding occurred. Abidin (1995) claims the life stress scale can act as an indicator of actual stressors on the family unit such as divorce, pregnancy and legal problems. The fathers in the experimental group experienced greater external life stress post intervention, however their scores in the

parent domain went down. The fathers in the control group experienced greater life stress pre-intervention and their parent domain scores went down slightly too. Although both groups lowered their parent domain stress scores, infant massage may have acted as a safeguard for the experimental group considering their life stress scores increased post intervention. As noted, these results can be described as statistical trends as they are approaching significant levels, and may have been significant had there been a larger sample size.

Research question three: Will infant massage class influence how fathers rate their infants in the four domains of facial cues; health, happiness, cuteness and resemblance?

Data analysis did not reveal any significant relationship between group (experiment or control) and pre and post intervention for any of the four facial cues. However, trends were found in the health and resemblance facial cues for the experimental group. Perhaps a larger sample size would have yielded significant results. Nonetheless, I discuss these trends. Post intervention, fathers in both groups reported lower ratings of healthy facial cues for their infants. However, the fathers in the experimental group only went down slightly. It is possible that the infant massage intervention actually improved the health of the infants and the fathers noticed less unhealthy facial cues than did their control counterparts. This is not unlikely as infant massage has been documented to strengthen the infants' immune system (Field, 2001).

The second trend was found in resemblance facial cues. As noted by Volk and Quinsy (2002) resemblance seems to be the facial cue fathers place the most importance on in their cost-benefit analysis. In addition, when fathers are certain of paternity they are

more likely to be involved in infant care (Volk & Quinsy, 2007). Had there been a larger sample size, perhaps this relationship might have been significant. Future research is needed to replicate this study with more participants and to include an actual measurement of involvement which could strengthen the case for increased involvement with increased feelings of resemblance post intervention.

Research question four: How do fathers experience infant massage classes?

Prior to a discussion of how the fathers felt in the infant massage class, it is necessary to describe how these men perceived the evolution of their relationship with their infant. The majority of fathers described how changes in their child (age and interaction ability) helped progress their relationship. This finding supports past research that suggests fathers generally feel more “connected” to their infants as the child gets older and is able to engage in activity such as play (Paquette, 2004). This is important to note as fathers may not be prepared for the early post-partum period and may not know what they can do to help develop this relationship early (McBride, 1989). Other research on parent-infant classes states 31% of fathers at six weeks postpartum would have liked more information on how to care for their baby (Matthey & Barnett, 1999). The authors stress the importance of including the father in both pre and post natal education as a way to provide opportunities to gain confidence and manage expectations (Matthey & Barnett, 1999).

Perhaps if fathers were taught infant massage early in the post-partum period they would see their relationship with their baby in a different light. The mean age of infants in this study was eight months so it is possible responses would have been different had the study taken place earlier, prior to the establishment of routines and

parental roles. One father's response summarizes this entirely "I'm being more involved (now) and I think having more involvement gives you more experience, um it just makes you think more and know more...". The vehicle used in this study to provide this information and experience is infant massage. Interestingly though, the men in the study did not perceive the infant massage instruction to be as valuable as it appears to be, which may be a possible reason for the non significant findings in the child domain of the parent stress index.

When asked how the fathers felt in the infant massage class 92% described an overall positive experience. However 34% of the fathers responses also included some descriptions of difficulty. For example one father said he felt awkward in the class at first because he had never considered infant massage before. His friend encouraged him to sign up and they decided they would attend as a social outing. This father said he eventually felt comfortable and could see the benefit of infant massage. This described difficulty may be a reflection of what some authors are finding in the current literature; men participating in baby massage as a minority occurrence (Mackereth, 2003; Adamson, 1996). These authors describe some challenges in recruiting male participants for their baby massage classes and research projects. They also suggest there are few images of fathers participating in infant massage in both mainstream and academic literature. It is possible that some of this initial difficulty could have been resolved had the class focused more time deconstructing the notion of fathers on the periphery of nurturing touch.

Two notiable themes emerged from the data on changes in the father-infant relationship since the start of the infant massage class. The first theme is characterized by the fathers perception of a change in the baby. Forty-two percent of fathers fell in this

category and noted the baby getting older and able to do more things as reason for their evolving relationship. The notion of increased age playing a role in increasing bonding is not new and is deeply entrenched in the messaged fathers get about fatherhood; relationships develop through play and start forming once the baby is more interactive (Grossmann et al., 2002). Interestingly none of these fathers indicated learning infant massage as a factor in their new relationship. It is possible that this prevailing notion of delayed bonding is the catalyst behind no perceived change in the child on the PSI.

The fathers who saw changes in themselves as reason for an overall change in relationship did however mention infant massage as playing a factor. Which is supported by the quantitative data collected from this study. Twenty-five percent of fathers fell into this category. One father said “if my wife had asked me to take her out for forty-five minutes I would say are you crazy? She is still breast-feed, I’m not going to do that. Forty-five minutes seems like such a long time...but now I am a lot more willing to keep her for an hour. It doesn’t seem that bad anymore. That was a big lesson for me, after twelve kids, you see, always learning, always learning”. Considering only twenty-five percent of fathers saw themselves as a reason for change supports the quantitative data and further suggests that fathers may not have been aware of the changes that were happening in themselves and their child.

The fathers were asked what it was like using the skill of infant massage at home. Seventy-five percent of responses included the element of challenge. Some fathers described not wanting to disrupt the established bed-time routine or already having set “daddy” activities and finding the time to schedule a daily infant massage was not realistic. The mean age of the infants was 8 months and there were multiple time fathers

in the group, perhaps teaching first time fathers earlier in the post-partum period (such as in Scholz & Samuels, 1992 study) would have yielded different results. It is possible the fathers in the experimental group were already set in their routines and less willing to incorporate something new into their schedule. It would also be interesting to have a longer span of time between teaching the fathers infant massage and asking them about their experience. This latter approach might, in turn, increase paternal confidence in reading infant behavioural cues. More time between testing may have also decreased any possible bias in the father's responses. It is possible they answered the PSI anticipating the studies hypotheses and actual change was not reflected.

When asked how the baby responded to being massaged the majority of father's answers were characterized by enjoyment and disinterest. Most of the father's said it depended on the time of day, the body part being massaged and whatever else was going on. The remaining thirty-three percent said the infant "tolerated it". Meaning they acted neutral to the massage and continued doing whatever they were doing. This indifference may have come as a surprise to some of the fathers because many noted they thought the child would enjoy it more than they appeared to. These findings do not seem to be supported in the literature, which seems to only report on the more positive responses (Adamson, 1996; Mackereth, 2003; Clarke, Gibb, Hart & Davidson, 2003). From an instructors point of view, these findings are encouraging in that they show the fathers were paying attention to engagement and disengagement cues and learning about personal preferences (IAIM, 2005). This is plausible and supported by the decrease in parent domain stress scores on the PSI.

Matthey and Barnett (1999) indicate a need for father participation in post-partum baby classes, however they claim there is much less known about how fathers view their education needs. This study discovered that seventy five percent of participating fathers said they would highly recommend infant massage class to other fathers. Similar to what Mackereth (2003) found, fathers saw the infant massage instruction as a great bonding tool and gateway to becoming more comfortable with their baby. The remaining twenty five percent of fathers said they would recommend infant massage on a case-by-case basis. The fathers in this group noted that it could help some fathers and not others and some children will enjoy it and others will appear not to. One father summarized this wonderfully “every child is different and its one of the things that I have learned (since his birth). What works for one doesn’t necessarily work for yours right? I would definitely recommend giving (baby massage) a shot and if it works for your baby great”. Again, this response seems to reflect the idea that there were no perceived benefits for the child, and thus no change in child domain scores.

In an open ended question, the fathers were asked what was the best part of the experience. Thirty three percent of the fathers said it was the chance to meet other Dads and babies. Many of the fathers said they felt isolated in their fatherhood role (family in another city, not knowing other fathers or children, few father-focused opportunities) which appears to be supported in the current literature (Richman, Raskin & Gaines, 1991). This is also supported by the decrease in parent domain scores which includes a subscale for isolation. Twenty-five percent of fathers said they enjoyed learning something new. Clarke et al., (2003) found that group massage instruction also helps enrich parenting experiences as parents are able to learn through shared discussions. The

remaining twenty five percent of fathers said the best part of the experience was spending one-on-one time with their child. The fathers appreciated the dedicated time they had on their own with their infant that wasn't just to "give mommy a break". This suggests baby massage is an activity fathers can participate in that gives them the connection they require to be more comfortable in their parenting role (Simpson, 2001).

Policy and practice especially in the pre and post natal educational settings will greatly benefit from the results of this study. As Anderson (1996b) indicates, fathers' are often dissatisfied with their ability to form a meaningful relationship with their baby. She suggests that although men want to be more emotionally involved and less traditional with their infants, they often do not know how to establish this relationship. The interview analysis revealed that the father's in this study felt the infant massage instruction was enjoyable and beneficial to themselves and other fathers. They claimed infant massage became a special skill that they were able to utilize with their infant. This skill may be something the hospital community may wish to educate new fathers about. In addition to providing men with information on how to support the mother during child birth (Anderson, 1996a), a section on fatherhood and mechanisms to develop close parental relationships such as infant massage should be incorporated. The infant-father relationship needs to be acknowledged and supported with knowledge and skill development. Infant massage seems to nicely package skill development with the added benefit of reducing parental stress and influencing attachment.

The results from this study may also be informative for other large scale institutions such as child welfare. The benefits of infant massage are not only limited to biological mothers and fathers. Evidence suggests grandparents and adoptive parents

could greatly benefit from infant massage instruction (Field, 2001). It is foreseeable that infant massage could also decrease parent domain related stress for these groups who may be experiencing additional transitional stress related to their new responsibilities.

On a much broader scale, there may be long lasting benefits for fathers who learn to massage their baby in the early post-partum period. As noted, fathers are often dissatisfied with their ability to form a meaningful relationship in this early period (Anderson, 1996). Infant massage could be seen as an opportunity to help ease this discomfort which may in turn improve self-esteem. As reported in Scholz and Samuels (1992) study improving efficacy in one area may have a spill over effect for other areas of parenting. It is possible that this early intervention may provide a platform for increased type and amount of father involvement throughout the child's life, ultimately improving child developmental outcomes.

Limitations and further suggestions for future directions

The most evident limitation of this study is the small sample size. A priori power estimate indicated a sample size of thirty six would be necessary to have sufficient power (.80) with alpha at (.05). Gaining access to participants was the most challenging aspect of this research project. Low attendance by fathers in post-natal classes is well documented (Matthey, Barnett, 1999; Mackereth, 2003). A total of three classes had to be held to obtain twelve participants (three, six and three respectively). Under the current constraints of a Masters thesis, a decision was made to proceed with a total of 24 participants. The results from this study should be replicated with a minimum of thirty six participants to improve reliability and increase statistical power.

In addition, there are a few logistical and feasibility issues associated with this study. A potential limitation of this study is the short time span between pre and post measures. Especially considering the hypotheses of this study suggesting that there will be a change in parent-child relationships due to the infant massage intervention. By doing a lengthier longitudinal study, I could make more concrete statements about the lasting effects of the intervention and how it ultimately impacts the relationship.

The second sets of limitations are methodological. Of primary concern is the quasi-experimental design. In order to have a true experimental design, randomization of participants to control and experimental conditions is necessary. Due to difficult recruitment efforts mentioned above, a quasi-experimental design was considered to be the most feasible way to move the project forward. Because the participants were assigned to each group, making strong causal statements about the efficacy of the intervention is limited. For example, it is possible that the changes found in the experimental group are due to factors other than the infant massage intervention such as motivation in parenting efforts.

The second methodological issue also deals with the study design. It would have been beneficial to have three conditions; an infant massage experimental group, an active social group and a third wait-list control group. Similar to the infant massage group, fathers in the social group would meet weekly for four weeks and discuss being a father and other child development issues. The only difference would be that they would not receive any infant massage instruction. The presence of this type of group would have also strengthened any causal statements made about the efficacy of the intervention. Without it, this study is not able to conclude for certain that it was the infant massage

instruction and not just the social gathering that changed the way fathers perceive their parenting role.

The third methodological limitation is the possibility of practice effects. The participants were asked to complete the same measure on more than one occasion (PSI and faces questionnaire pre and post intervention). Therefore it was important to consider practice effects. Although this was unavoidable due to the design of the study, it was consistent across both experimental and control groups. In addition, Abidin (1995) claims the PSI remains reliable when administered with a minimum of two weeks between tests. Although practice effects may be evident, the PSI is robust enough to remain reliable over even the short time frame of this study.

The fourth methodological limitation deals with the self-report measure. The fathers were asked to record their daily interactions with their infant on a provided calendar (Appendix F). Seventy-five percent of responses were incomplete or incorrect. It is not known if the task was too demanding or if the instructions were unclear. Considering the unreliability of the data, this information was not included in the analyses. However, in regards to the calendar a few fathers in the experimental group mentioned they gained personal insight from the exercise. One father said the tracking “put into perspective the amount of time you are actually spending interacting with your child as opposed to time that you are just with your child...you realize that just cuz you are in the same room doesn’t mean that you are spending time together”.

The final logistical issue to be discussed is the idea that there was one primary person responsible for research design, data collection, interviewing and providing the intervention. To improve vigor, the individual providing the intervention should have

been “blind” to the study’s purpose so not to bias the participants’ responses in any way. It would also be helpful to have an individual administer the PSI and interview who was “blind” to the purpose of the study for the same aforementioned reasons. Feasibly, this was not possible, as the primary student investigator was unable to hire research assistants to carry out various aspects of this study. With a larger budget, this researcher would suggest hiring a research assistant and a certified infant massage instructor to provide the intervention.

Future research may wish to consider strengthening this study by following the above suggestions for improvement. In addition, this study should be considered exploratory for intervention with fathers. It may be beneficial to replicate this study with a larger sample of father or perhaps a clinical sample of fathers who may be at-risk for developing problematic relationships. For example an interesting study would be to apply the infant massage intervention model for teenage fathers (McClure, 2000).

Conclusions

Father-infant attachment has gained considerable attention in the past few decades. Research has uncovered the need to look at the father-infant relationship in its own framework rather than as an alternative to mother-infant attachment theory. The relationship between father and infant is complex. Although there appears to be a new culture of fatherhood (men as involved participants), the practice of fatherhood has not caught up to this idea (Rustia & Abbott 1993). Men need to know more about the transition to fatherhood and skill development that will assist in forming positive relationships with their infants (Anderson, 1996).

Infant massage appears to be a viable option for teaching fathers care-giving sensitivity. A brief intervention showed fathers were able to improve their feelings of competence, isolation, depression, role acceptance, spousal support, attachment and health. Although not all fathers saw the direct benefits of the infant massage instruction, they do note they enjoyed participating in an activity that gave them special time with their infant and the ability to meet other fathers.

As supported by Anderson (1996b) fathers need to know that their relationship may develop slower than mothers. Fathers should be taught that they can develop close relationships early too. One way to reduce parent related stress is to teach fathers in the early post-partum period infant massage, which can reduce stress and assist with the development of one of life's most primary relationships.

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APPENDIX A

DATE: March 7, 2008

FROM: Michelle McGinn, Chair
Research Ethics Board (REB)

TO: Dr. Zopito Marini, Child & Youth Studies
Carolynn Darrell

FILE: REB 07-230 VOLK/DARRELL

TITLE: Baby massage class and infant-father relationships

The Brock University Research Ethics Board has reviewed the above research proposal.

DECISION: Accepted as clarified

This project has received ethics clearance for the period of March 7, 2008 to August 31, 2008 subject to full REB ratification at the Research Ethics Board's next scheduled meeting. The clearance period may be extended upon request. The study may now proceed. Please note that the Research Ethics Board (REB) requires that you adhere to the protocol as last reviewed and cleared by the REB. During the course of research no deviations from, or changes to, the protocol, recruitment, or consent form may be initiated without prior written clearance from the REB. The Board must provide clearance for any modifications before they can be implemented. If you wish to modify your research project, please refer to <http://www.brocku.ca/researchservices/forms> to complete the appropriate form revision or modification to an Ongoing Application.

Averse or unexpected events must be reported to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants and the continuation of the protocol.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research protocols.

The Tri-Council Policy Statement requires that ongoing research be monitored. A Final report is required for all projects upon completion of the project. Researchers with projects lasting more than one year are required to submit a Continuing Review Report annually. The Office of Research Services will contact you when this form Continuing Review/Final Report is required.

Please quote your REB file number on all future correspondence

APPENDIX B

Informed Consent

Date: **May, 2008**
 Project Title: **Baby massage class and infant-father relationships**

Principal Student Investigator: **Carolynn Darrell**
 Department of **Child and Youth Studies**
 Brock University
cd98ai@brocku.ca

Faculty Supervisor: **Dr. Marini, Dr. Volk**
 Department of **Child and Youth Studies**
 Brock University
 (905) 688-5550 Ext. **3178** (**zmarini@brocku.ca**)

INVITATION

You are invited to participate in a study that involves research. The purpose of this study is to learn about baby massage and to see what fathers think of the experience. There is a lot of evidence to suggest that infant massage is beneficial for mothers and infants, but the jury is still out on fathers. The research will be conducted by Carolynn Darrell who is a Masters student at Brock University.

WHAT'S INVOLVED

As a participant, you will be asked to fill out questionnaires about yourself, your baby and basic demographics (e.g., your age, your baby's age, etc.) You will be assigned to one of two groups. Both groups will consist of four classes every other week (at one of the times designated) at the Lifespan Research and Development Institute located on the Brock University campus. The classes are approximately one hour in length. One group will receive infant massage instruction and the other will be asked to watch a movie or television show. Both groups will be asked to record the amount and type of time they spend with their infants at home during the eight week duration of the study. At the end of the four class series, both groups will be asked to fill out an additional set of questionnaires. Those in the infant massage group will be asked to schedule an interview with the primary student investigator at a location of their convenience. An honorarium of \$50 will be paid to participating fathers at the end of the study. Participation will take approximately four hours of in-class time, 1 hour for the interview and ½ hour for each questionnaire for an approximate total of 6 hours of your time. If you are in the control group, you will be offered optional infant massage instruction at the end of your four week series.

POTENTIAL BENEFITS AND RISKS

Possible benefits of participation include getting to know your infant better and learning about being a father. There is some risk in participating in this study, as physical contact with your infant is necessary. To reduce this potential risk, the infant massage instruction will be provided by a Certified Infant Massage Instructor (CIMI) educated by the International Association of Infant Massage (IAIM). All massage strokes will be preformed by YOU (the parent only), with the

CIMI demonstrating on a practice doll. Massage instruction will take place on the floor in a warm, comfortable room on the Brock University campus. Hypoallergenic grape seed oil will be offered by the CIMI to perform the massage. Use of the oil is optional. There is also some deception in this study. The reason this is included is to make sure I don't bias your responses. At the end of the study I will fully disclose to you everything I was looking for in the study. You will be asked to re-consent for your data to be included in the study after you have been debriefed. Finally, answering questions on parenting may bring up some uncomfortable feelings or thoughts for you. If this does happen please contact the Niagara Parent Talk Info Line at 905-688-8248.

CONFIDENTIALITY

The information you provide will be kept confidential. Your name will not appear in any thesis or report resulting from this study; however, with your permission, anonymous quotations may be used. The individual interview at the end of the baby massage class will be audio taped for later transcription and also kept with the principal investigator. Once the interview is transcribed the audio tapes will be destroyed. All other data will be kept for 5 years after which time the files will be shredded. Access to this data will be restricted to Carolyn Darrell (the primary student research investigator) and supervising advisors Dr. Marini and Dr. Volk.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the study. Further, you may decide to withdraw from this study at any time and may do so without any penalty or loss of benefits to which you are entitled.

PUBLICATION OF RESULTS

Results of this study may be published in professional journals and presented at conferences. This means that by consenting to this study, you are agreeing that your data can be used for both primary and secondary uses. Your name or any identifying information will not be included in either primary or secondary uses of data. Feedback about this study will be available from the principal student investigator upon the completion of the study. The principal student investigator will e-mail you the general results in you would like this information.

CONTACT INFORMATION AND ETHICS CLEARANCE

If you have any questions about this study or require further information, please contact the Principal student Investigator or the Faculty Supervisor using the contact information provided above. This study has been reviewed and received ethics clearance through the Research Ethics Board at Brock University (07-230). If you have any comments or concerns about your rights as a research participant, please contact the Research Ethics Office at (905) 688-5550 Ext. 3035, reb@brocku.ca.

Thank you for your assistance in this project. Please keep a copy of this form for your records.

CONSENT FORM

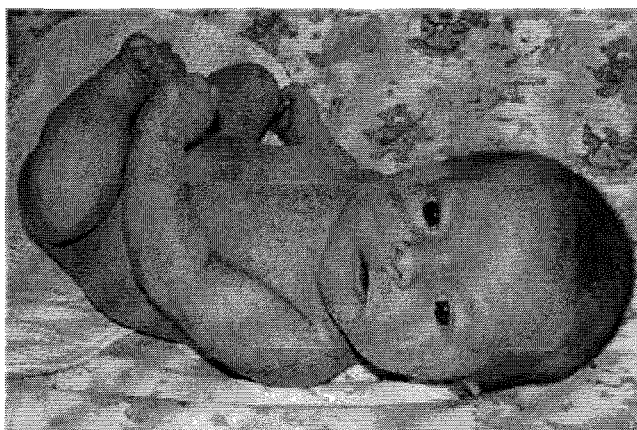
I agree to participate in this study described above. I have made this decision based on the information I have read in the Information-Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time.

I understand that by signing my name I am also consenting to my infant's participation in this study.

Your Name: _____ Your Infant's
name _____

Signature: _____ Date:

Learn to Massage your Baby for Free!



**Classes taught by a Certified
Infant Massage Instructor**

§ participate in a research project titled "Baby massage class and infant-father relationships"

Who can participate?

- Fathers with an infant between 6-15 months of age.
- Live in the St.Catharines or Niagara region (as you have to travel to Brock University)
- You are interested in learning how to massage your baby and participate in this research study.

TO PARTICIPATE email:

Carolynn Darrell (Masters Student at Brock University in Child and Youth Studies) cd98ai@brocku.ca and provide your telephone number or email address.

This research project is being supervised by Dr. Marini and Dr. Volk at Brock University (905) 688-5550 ext 3178

This research project has been approved by the Brock Research Ethics Board (REB file# 07-230)

All classes run for 4 weeks in total.

Every effort will be made to help accommodate for various schedules.

I will gain your written permission to participate in this study at the first class. All classes will take place in the Lifespan building at Brock University

All participants will be asked to fill out a few questionnaires and some will be asked for an interview. More information will be provided.

Free Parking at Brock

**Receive \$50 for your
participation**

APPENDIX D

St. Catharine's Standard Article



Spectrum
Real Life

SPECTRUM EDITOR BRIAN COLLINS, 905-684-7253, EXT. 252



His drinking is harming their relationship / B



In touch with baby

Infant massage could be a great way for dads to bond with their toddlers, says a Brock researcher



R.W. Griffin with his son, 23-month-old Jacob of Niagara Falls. Griffin is getting more and more involved with parenting. Infant massage could be the next step in the bonding experience, according to a Brock researcher.

By GREGORY CLARK
Standard Staff

For the longest time, it felt like parenting was just about making sure the baby didn't cry. But now, R.W. Griffin, 33, is getting more and more involved with parenting. He's not just changing diapers and feeding his son, 23-month-old Jacob, but he's also taking steps to bond with him. One of the ways he's doing this is through infant massage.

R.W. is one involved dad. "It's not baby-sitting anymore," he says, laughing. "That's pretty typical for a guy, was Cerebral Cortex, a man's under in Child and Youth Studies at Brock University."

Griffin is more play-focused. That's one of the ways they bond. They're not just playing with their son, but they're also playing with him. They're not just playing with him, but they're also playing with him. They're not just playing with him, but they're also playing with him.

Griffin is more play-focused. That's one of the ways they bond. They're not just playing with their son, but they're also playing with him. They're not just playing with him, but they're also playing with him. They're not just playing with him, but they're also playing with him.



W. Griffin is heavy into daddy bonding these days. And, at 23 months, little Jacob has added the words dada to his vocabulary.

Dads and babies

CONTINUED FROM PAGE B1

Studies have shown that boys who lack a father figure in their life are more likely to get into trouble with the law and have abusive relationships with women, he says.

At 13 months, little Jacob took his first steps a couple weeks ago. And he's added the words dada to his vocabulary.

"It's the word," says R.W., smiling. "You know you're a dad, but when your son starts calling you dad, it's a good feeling."

Griffin is more play-focused. That's one of the ways they bond. They're not just playing with their son, but they're also playing with him. They're not just playing with him, but they're also playing with him. They're not just playing with him, but they're also playing with him.

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WHO WHERE WHEN

Griffin is more play-focused. That's one of the ways they bond. They're not just playing with their son, but they're also playing with him. They're not just playing with him, but they're also playing with him. They're not just playing with him, but they're also playing with him.

For more information visit www.dadsandbabies.ca or call 905-931-8392.

APPENDIX E
Telephone or Email Script

Hello, thank-you for your interest in participating in this research study. My name is Carolynn Darrell and I am a Child and Youth Studies Masters student from Brock University.

I am interested in learning about fathers' experience in baby massage class. I cannot tell you entirely what I hoping to find in this study because I don't want to bias the results. I will tell you everything at the end of the study and will ask you again for your permission to include your answers in the study

To participate in this study, you will be asked to come to the Lifespan Development Institute at Brock University where I will get your written permission to participate in this research. You will be randomly assigned to one of two groups. The first group will receive four classes of infant massage instruction. The second group will receive four classes of infant television or movie time. Both groups will be asked to fill out a few short questionnaires and the massage group will be asked to complete an interview.

When you come to Brock University for your first class we will go over the consent process and you will be randomly assigned to one of the two groups. There is free parking at Brock University and at the completion of the study you will receive a \$50 honorarium. In addition, if you are in the television group, you will be offered infant massage instruction after the study is completed.

All of your information will be considered confidential. All data will be kept in a secure location and destroyed after 5 years. With your permission, the interview will be tape-recorded to facilitate collection of information, and later transcribed for analysis. I would like to assure you that this study has been cleared by the Research Ethics Board at Brock University (3035). After the data has been analyzed, you will be given the option to receive an executive summary of the research results.

Thank-you for your interest in this important research study. If you are still interested in participating I will randomly assign you to one of the two groups and you will be asked to come in to Brock to sign the consent form and participate in your first class.

Thank-you again for your time.

APPENDIX F

Demographic Information Sheet

1. How many children do you have? _____
2. How old is your infant that is participating in this study? _____
3. Is your infant a male _____ or female _____
4. How old are you? _____
5. Circle the amount of baby massage experience you have had previous to this study?

None
Some
Diverse
Extensive
6. What is your dating/marital status with the infant's mother? _____
7. If you are currently married or have an exclusive partner, how long have you been in this relationship? _____ years _____ months.
8. Do you live in the same house as your infant? _____ If no, how often do you see him/her? _____
9. Which category best describes your level of education? Please Circle.

High school
Vocational School
College Diploma
University Degree
Graduate Degree
10. Which category best describes your family wealth? Please circle.

Not very wealthy
Average wealth
Very wealthy

APPENDIX G

Instructions for Calendar

Please record in the box the activity type (refer to activity legend) you engaged in and the amount of time you did the activity.

Please start recording your daily activity after the first class and finish at the last class.

Activity Legend

Activity	Examples
1. Touch interaction	Cuddling, infant massage, bathing, etc...
2. Non-touch interaction	Reading, watching television together, playing, etc...
3. Activity of Daily Living	Changing Diapers, feeding, etc...

*Fathers will be given a blank calendar with these instructions at the top for the duration of the study.

*For convenience their class date and time will also be marked on their calendar.

For example:

November

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5 1 st Class 6:15pm	6	7	8
9	10	11	12 2 nd Class 6:15pm	13	14	15
16	17	18	19 3 rd Class 6:15pm	20	21	22
23 30	24	25	26 4 th Class 6:15pm	27	28	29

APPENDIX H

Facial Cue Rating Scale

Please circle your response. Rate your child in terms of your perception of their cuteness, health, resemblance and happiness on a scale from 1 - 7.

1. Health

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Very unhealthy

Average health

Very healthy

2. Cuteness

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Not at all cute

Average cuteness

Very Cute

3. Resemblance

1	2	3	4	5	6	7
---	---	---	---	---	---	---

No resemblance

Average resemblance

High resemblance

4. Happiness

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Very unhappy

Average happiness

Very happy

APPENDIX I

Semi-structured Interview Questions for Baby Massage Study

1. How do you experience being a father?
2. How has your relationship with _____ evolved since his/her birth?
3. Can you describe how you felt in the infant massage class?
4. Has your relationship with _____ changed at all since coming to this class?
5. What was it like using infant massage at home?
6. How did _____ respond to being massaged?
7. Would you recommend infant massage class to other fathers?
8. What was the best part of the class or experience for you?

APPENDIX J

4 Class Outline**Class Strokes and Discussion Topics**

1	<ol style="list-style-type: none"> 1. History of infant massage 2. Benefits of infant massage – Benefits of oil 3. Strokes for the legs
2.	<ol style="list-style-type: none"> 1. Why do babies cry 2. Behavioural states and infant cues 3. Strokes for the arms and tummy
3	<ol style="list-style-type: none"> 1. Gas and constipation routine 2. Strokes for the chest and back 3. Gentle movements
4	<ol style="list-style-type: none"> 1. Strokes for the face 2. Short full-body massage routine 3. Discussion on keeping the connection as they grow

APPENDIX K

Baby Massage Study Debriefing

Thank-you for your participation in this study of baby massage class and infant-father relationships. At the beginning of this study I told you that I couldn't tell you everything I was looking for because I didn't want to bias your answers. Now that it is over, I can tell you the specific factors I was interested in!

I am fascinated with the infant-father relationship in terms of attachment. Not much is known about this unique bond and how the relationship progresses. More specifically I want to know if teaching fathers infant massage can change how they perceive themselves as a parent or the way they view their infants. I was interested to see if fathers who have been taught infant massage would rate their infants in the same way as fathers who had not been taught this skill. If I had told you initially about the purpose of the study you may have been swayed to answer the Parenting Stress Index differently. By keeping you "blind" to the study's purpose, I expect I got your "true" feelings and responses on the questionnaires. Your contribution to this area of study is greatly appreciated and will hopefully help encourage other fathers to participate in infant-father research.

If you feel you need further support (regarding being a parent or otherwise) please feel

free to contact The Niagara Parenting Talk Line at:

http://www.regional.niagara.on.ca/living/health_wellness/parenting/Parent-Talk-Line.aspx

In addition, there is a wonderful pamphlet on parenting information at:

http://www.regional.niagara.on.ca/living/health_wellness/parenting/pdf/Birth-12MonthGuide.pdf

Should you have any further questions or concerns, you may freely contact myself, Carolynn Darrell at (cd98ai@brocku.ca). You are also free to contact the

supervising faculty Dr. Tony Volk at (905) 688-5550 ext.5368 (tony.volk@brocku.ca) or Dr. Zopito Marini at (905) 688-5550 ext. 3178 (zmarini@brocku.ca). If your question is regarding the study's ethics, contact the Brock University Research Ethics Board at (905) 688-5550 ext. 3035 (reb@brocku.ca).

Please keep this form for your records.

Because this study had some deception called “incomplete disclosure” it is necessary to ask you if you are still interested in participating in the study now that you know the whole truth. Please understand and complete the following:

I have completed and been fully debriefed regarding Carolynn Darrell’s study on infant massage and father relationships. I understand that the goals of this study were not disclosed during the briefing portion of the study as an effort to minimize possible participant biases. I understand that incomplete disclosure may ethically be considered deception, and that I have the right to now request that my data not be used without incurring any penalty or consequence to myself. I understand that if I do not give consent for the experimenter to use my data, I may either take my data with me when I leave or allow the experimenter to immediately dispose of it in a secure manner. Having read and understood all of the above:

I GIVE MY PERMISSION TO USE MY DATA AND MY INFANT’S DATA _____

I DO NOT GIVE MY PERMISSION TO MY DATA AND MY INFANT’S DATA _____

Signed: _____

Dated: _____

Please email me an executive summary or the results at _____